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The Oil Man's Calendar

FEB.	
7	**East Texas Chapter, A.P.I., Kilgore, Texas.**
13–16	**American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.**
23–25	**American Society of Mechanical Engineers, New Orleans, Louisiana.**
23–25	**Louisiana Engineering Society, New Orleans, Louisiana.**
25	**North Texas Oil and Gas Association, Wichita Falls, Texas.**
MAR.	
16–17	**Southwestern District, American Petroleum Institute, Division of Production, Plaza Hotel, San Antonio, Texas.**
20–22	**Western Petroleum Refiners Association, San Antonio, Texas.**
21–23	**Society of Exploration Geophysicists, Huckins Hotel, Oklahoma City, Oklahoma.**
22–24	**American Association of Petroleum Geologists, Skirvin Hotel, Oklahoma City, Oklahoma.**
APR.	
3–7	**American Chemical Society, Baltimore, Maryland.**
11	**Pacific Coast District A.P.I. Division of Production, Biltmore Hotel, Los Angeles, California.**
13–14	**National Petroleum Association, Cleveland, Ohio.**
24–29	**Oil-World Exposition, Houston, Texas.**
MAY	
3–5	**Petroleum Electric Supply Association, Houston, Texas.**
3–5	**Petroleum Industry Electrical Association, Houston, Texas.**
3–5	**Natural Gasoline Association of America, Tulsa, Oklahoma.**
15–18	**American Petroleum Institute, Mid-Year Meeting, New Orleans, Louisiana.**
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15–16	**Pennsylvania Grade Crude Oil Association, Hershey, Pa.**

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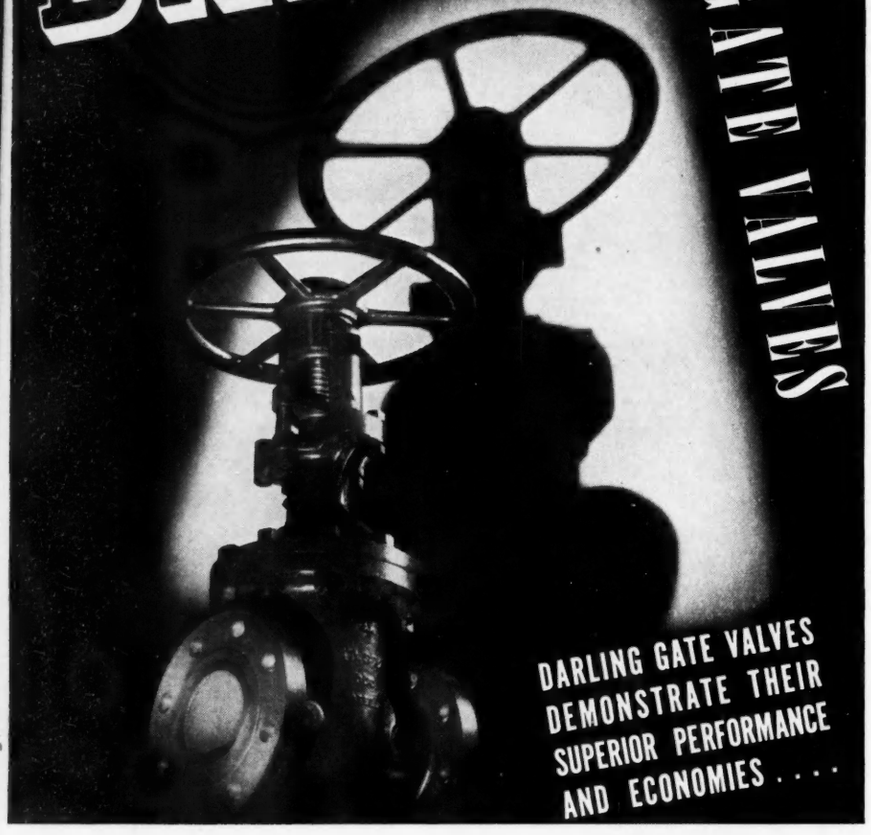

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The Panorama Changes, 1938-39

Recession Did Not Seriously Impair Petroleum Industry in 1938, and Expected Recovery Promises Favorable Results in 1939

LIKE most other lines of business, the petroleum industry has begun to feel the general recovery from the 1937-1938 recession, and although various problems and difficulties remain, 1939 probably will go on the records as a fairly satisfactory and profitable year.

Earnings Outlook Cheerful

Earnings in the oil industry possibly will be about the same in 1939 as in 1938, although some decline would not be surprising, as crude prices have been lowered somewhat in recent months.

On the other hand, volumes of business probably will be larger this year than last year, because of better demand, and the indicated increased sales will bolster earning power.

If 1938 earnings are duplicated, the industry will be showing profits close to the average for the past five years.

Demand Headed for New Peak

Demand for oil probably will set a new record in 1939, as the current business recovery undoubtedly will materially stimulate consumption of most of the petroleum products.

Total demand for all United States oils was down less than 2 percent in 1938 from the all-time peak of 1937, as heavy exports cushioned declines in domestic consumption.

Outside the United States, the normal, upward trend of oil consumption was continued.

World Production Likely to Increase

Although world production of petroleum declined 3.3 percent in 1938 from the all-time peak of 1937, it may be back around the record level in 1939. For an increase appears likely in the United States, in view of improving demand for oil; and output abroad may be expected to follow the normal, steadily rising trend.

The world production of crude in 1938 amounted to approximately 1,975,640,000 barrels. The peak output of 1937 was 2,042,007,000 barrels.

The decline for 1938 was accounted for by a decrease in the United States, as other countries, in the aggregate, had about the same output as in 1937.

Larger United States Output Probable

The indicated increase of demand for United States oils in 1939 probably will result in some stepping up of the country's crude oil production. However, it is doubtful if output will exceed the all-time peak reached in 1937, in view of efforts to hold supply strictly in balance with demand and the desire to eliminate surplus crude stocks.

The United States crude production of 1,212,907,000 barrels in 1938 was 5.2 percent less than the 1,279,160,000 barrels produced in 1937.

Gain in Producing Wells Foreseen

At the end of 1939 there will probably be several thousand more producing oil wells in the United States than at the beginning of the year.

The total has been steadily increasing since 1931, when greatly depressed prices forced premature abandonment of many wells. At the end of 1938 there were 371,875 oil wells on production. That was 8845 more than at the end of 1937.

Known Crude Reserves at New Peak

That the United States need not yet fear the approach of a shortage of petroleum is indicated by the success in discovering both new producing areas and volumes of oil in 1938.

The finding of an increasing number of both new fields and producing sands in old fields carried the nation's discovery rates to another all-time peak in 1938. New fields found rose from 224 in 1937 to 264

in 1938, while new pay strata in previously located pools totaled 160, compared with 136.

As a result of these discoveries, plus extensions to numerous fields, crude oil reserves rose to another all-time high, despite the large quantity produced. The known reserves are estimated to stand now at 15,890,840,000 barrels.

World Drilling To Be Extensive

Comparatively heavy drilling is in prospect throughout the world in 1939. A small decrease in completions from the number in 1938 is forecast for the United States. But 1938 was a comparatively active year, despite some curtailment, and even a little additional cutting down on field work would leave a large amount of drilling.

In countries outside the United States, development was active last year and it undoubtedly will continue so this year.

Slightly Less U. S. Drilling Forecast

A survey made by the staff of this publication indicates that well completions in the United States in 1939 will total approximately 25,965. That would represent 5.7 percent less drilling than in 1938.

The decline will occur, according to the survey, because of fewer completions in all but one of the half dozen leading oil producing states.

California is expected to experience a sharp curtailment of drilling. Moderate declines are expected in Texas and New Mexico, and slight decreases in Oklahoma and Kansas. These five states in 1938 accounted for 60 percent of all United States completions.

Increases in drilling are expected, on the other hand, in Illinois, Indiana, Kentucky, New York, Pennsylvania, Arkansas, Louisiana, and some other states.

Active Development Abroad Predicted

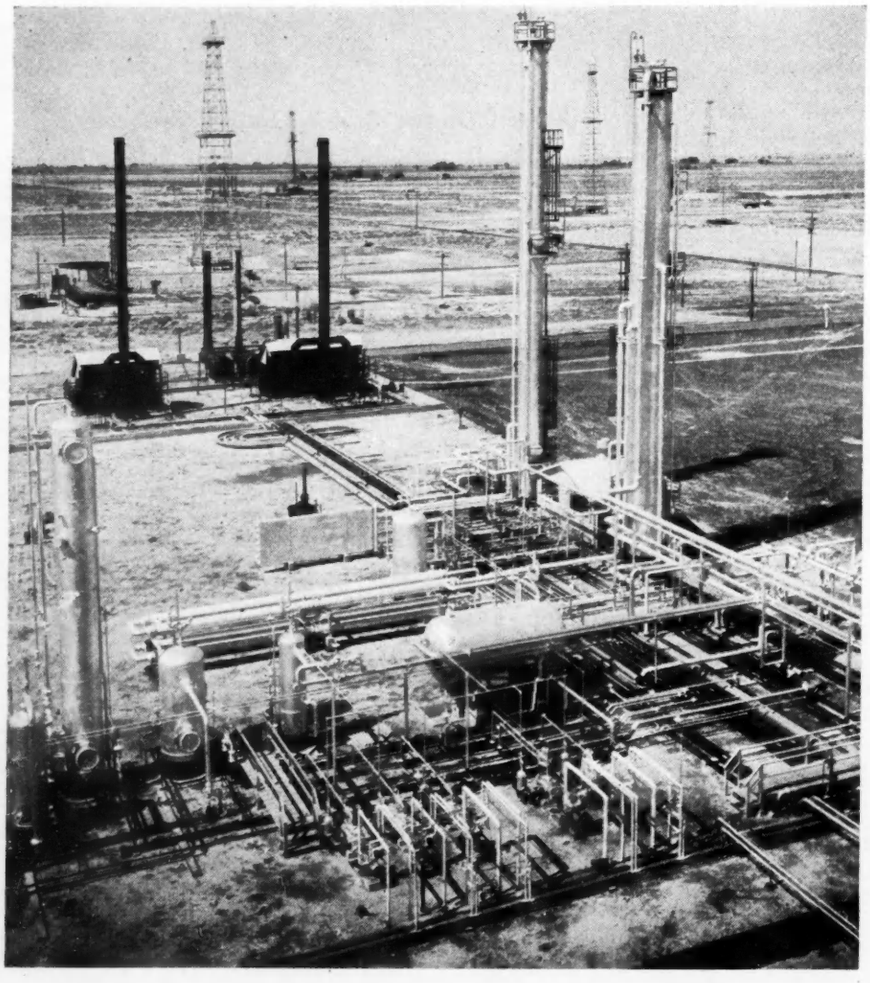
The outlook for foreign drilling operations is brighter for 1939 than it was for 1938. Pending and current wars in Europe and the East will have a dampening effect upon fields within range of hostile guns, but this deterrent will be offset by increased activity in areas outside the realm of danger.

Outside of the anticipated increase in demand on account of hostilities, consumption of petroleum products needed for normal peacetime uses will increase, furnishing the second part of a double incentive for drilling abroad.

Industry to Spend More in 1939

Expenditures for drilling operations in the United States during 1939 probably will show an increase over those of 1938. This conclusion is based on an analysis of actual reports received from producing companies in every district. Fewer wells will be drilled, but the increased cost of a greater average well depth should more than offset a slightly lower footage for 1939. Equipment purchases were disappointing last year, and many operators have signified their willingness to increase their budgets if conditions improve.

Expenditures for pumping operations for 1939 will



This absorption gasoline plant was built by Union Oil Company during 1938 to handle the gas output of wells in the Rio Bravo field, Kern County, California, which was discovered a little over a year ago as a result of deep drilling. The field produces from a depth of 11,300 feet, and was the deepest production in the world at the end of 1937. Four fields now yield oil from a greater depth. The discovery well may be seen between the boiler stack in left background.

This $500,000 latest-type plant will treat 20 million cubic feet of gas daily. Although wells completed in the field are said to be capable of running it to capacity, but due to production curtailment is treating approximately 5,000,000 cubic feet with a 3000-gallon natural gasoline yield daily.

The plant covers two acres and provisions were made in construction to allow for expansion to three times its present size.

be materially higher than those of 1938. The heavy flush production in several large fields and sharp curtailment in various districts checked the tendency of wells to go on the pump last year. The carry-over of weak flowing wells was heavy, and a high precentage of such producers will be placed on the pump within the year. An improved demand for crude oil will also result in a greater expenditure for equipment on old pumping wells.

Refineries Employing New Processes

The refining branch of the industry is evidencing accelerated interest in the newer processes available for more efficient and profitable operations.

The most recent technical achievement affecting this branch of the industry is catalytic cracking, and two commercially proven processes are being constructed by five of the largest major refining concerns, while a third group plans offering a similar process shortly.

Through catalytic operations, the industry can achieve proper balance in its production of gasoline and fuel oils, while at the same time producing improved motor fuels at higher operating efficiencies.

In addition to the catalytic systems such as catalytic cracking, polymerization, hydrogenation and others, there is continued activity in construction of combination cracking facilities, reforming plants, and solvent refining processes for the manufacture of lubricating oils.

In 1939 the industry is to spend around $200,000,000 for improving its facilities and bettering its economic position through extensions and modernization of existing refineries and the establishment of new plants.

Heavy Refinery Runs Endanger Gasoline Market

THE oil industry continues to tread on dangerous ground, in maintaining refinery throughput at levels exceptionally high for mid-winter.

Following sharp increases in each of the two preceding weeks, crude oil runs to stills were enlarged greatly again in the week ended January 21. Having averaged 3,310,000 barrels daily, the runs were 50,000 barrels higher than in the previous week and 195,000 barrels higher than three weeks before.

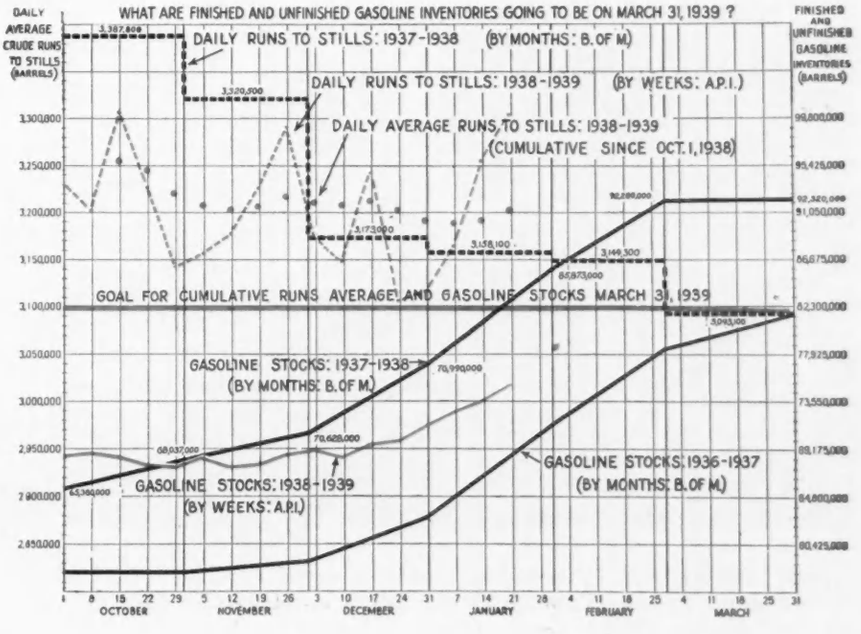
If the industry were to continue refinery runs around this new high level through February and March, it probably would reach the end of the winter season with about 95,000,000 barrels of gasoline in storage. That would be more than the record-breaking 92,000,000-barrel gasoline inventory with which the industry was over-burdened at the end of March last year and which undoubtedly was largely responsible for depressed gasoline prices in 1938.

It is expected that gasoline demand will be about 4 percent larger in 1939 than in 1938, and such a demand could be adequately fulfilled with only about 82,300,000 barrels of gasoline in reserve in the storage tanks at the beginning of the heavy consuming season, March 31. According to this estimate, any gasoline storage in excess of that amount at that time would be surplus that would be a burden on the market.

If the gasoline stocks were to be held near the indicated desirable level of about 82,000,000 barrels as of March 31, however, refinery runs would have to be drastically restricted, to 2,931,500 barrels daily, between now and the end of March.

For as indicated in the accompanying chart, it has been calculated, with due consideration of the yield of gasoline from crude and of the indicated demand for gasoline, that average daily runs to stills of 3,100,000 barrels from October 1, 1938, to March 31, 1939, would result in gasoline stocks of 82,300,000 barrels on the latter date. And so far, with two thirds of that six-months period already elapsed, crude runs have averaged 3,205,312 barrels daily, as indicated by the last red dot on the right in the chart. To compensate for the past heavy runs and to bring the average for the whole fall-winter season down to the 3,100,000 barrel "goal," runs in the rest of the period would have to average only 2,931,500 barrels daily, a rate that appears unlikely to be achieved.

However, the goals for refinery runs and end-of-March gasoline stocks that were set up in these estimates and on this chart are proving too conservative so far, because the present fall-winter season has been milder than normal. The favorable weather has encouraged motoring and caused gasoline demand to run unseasonably high. Consequently, in spite of the comparatively heavy refinery runs that have prevailed, gasoline stocks had risen by January 21 only to 75,455,000 barrels. Current demand has been absorbing substantial quantities of gasoline that would have been going into storage, under the recent rates of production, if normal winter weather had prevailed.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GASOLINE STOCKS: 1936-1937 (BY MONTHS: B. OF M.)
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NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH

Larger Consumption of Oil Expected in 1939

Demand for petroleum probably will set new record this year, after having declined slightly in 1938, when consumption of fuel oil and lubricants lagged.

By L. J. LOGAN, Associate Editor

—Photo by Ewing Galloway, New York

Formerly first and still a close second among the uses for fuel oil is the bunkering of steamships. To put oil into this White Star liner, Majestic, a 10-inch hose has been run into the big ship from a 15,000-ton capacity tanker of an oil company.

IN so far as good demand for oil can assure favorable results in the petroleum industry, the outlook for the coming year is distinctly hopeful. For the present business recovery is expected to result in an increase of around 5 percent in demand for United States oils in 1939.

Such an increase would push the demand to a new all-time peak and would represent a resumption of the normal, consistently rising trend of oil consumption, following the interruption of that trend by the business recession in 1938.

Gasoline Use Large

Present estimates indicate that the demand for gasoline will be around 4 percent larger in 1939 than in 1938, in consequence of better business conditions and a sharp increase in sales of new automobiles. Even in 1938 gasoline demand increased a little and set a new record.

The demand for all other petroleum products in the aggregate is expected to be similar to or slightly larger than that indicated for gasoline.

Fuel Oil Demand

Consumption of the heavy, industrial fuel oils and of industrial lubricants may show material improvement, after having declined considerably in 1938 because of reduced industrial activity.

The demand for gas oil and distillate fuels, used principally for heating, is also expected to show a material increase for 1939. More oil burners are in use now than ever before, and heating oil consumption probably will be about 15 percent larger this winter than last winter. This heavy consumption will be reflected in the figures on demand in

1939, which will consequently be higher than comparable figures for 1938. The demand for heating oils in the calendar year 1938 was approximately the same as the record demand of 1937.

Kerosene and Asphalt

Kerosene consumption very likely will increase again in 1939, after having risen a little, to a new high, in 1938.

Similarly, asphalt demand increased last year and probably will rise further in 1939, as building activity is proceeding above the high levels of the past year.

Road oil consumption was down only slightly in 1938, and it probably will show an increase this year.

Demand for Petroleum in 1938 Only Slightly Under All-Time Peak of 1937

Total demand was off only 1.7 percent for first 11 months. Exports of both crude and refined oils were up. But total domestic demand was down 3.5 percent, as declines in consumption of fuel oils, lubricants, and some other products outweighed slight increases for gasoline, kerosene, and asphalt.

ITEM	FIRST 11 MONTHS 1937	FIRST 11 MONTHS 1938	FIRST 11 MONTHS Percent Change	NOVEMBER 1937	NOVEMBER 1938	NOVEMBER Percent Change
Total Demand	1,228,854,000	1,208,186,000	— 1.7	114,383,000	114,609,000	+ 0.2
Daily average	3,679,000	3,617,000	— 1.7	3,813,000	3,820,000	+ 0.2
Exports:						
Crude petroleum	62,118,000	72,389,000	+16.5	6,645,000	5,602,000	—15.7
Refined products	98,529,000	105,396,000	+ 7.0	9,814,000	8,461,000	—13.8
Domestic Demand:						
Motor fuel	479,887,000	480,008,000	+ 0.02	42,718,000	44,991,000	+ 5.3
Kerosene	48,552,000	49,538,000	+ 2.0	5,705,000	5,368,000	— 5.9
Gas oil and distillate fuels	101,013,000	100,908,000	— 0.1	11,639,000	11,472,000	— 1.4
Residual fuel oils	297,852,000	262,863,000	—11.7	26,180,000	27,621,000	+ 5.5
Lubricants	21,828,000	19,417,000	—11.0	2,037,000	1,735,000	—14.8
Wax	985,000	933,000	— 5.3	79,000	71,000	—10.1
Coke	5,259,000	5,083,000	— 3.3	347,000	520,000	+49.8
Asphalt	21,051,000	23,399,000	+11.1	1,444,000	1,745,000	+20.8
Road Oil	7,758,000	7,601,000	— 2.0	314,000	222,000	—29.3
Still gas	59,144,000	57,477,000	— 2.8	5,081,000	5,083,000	+ 0.04
Miscellaneous	2,091,000	1,631,000	—22.0	142,000	144,000	+ 1.4
Losses	22,787,000	21,543,000	— 5.4	2,238,000	1,574,000	—29.7
Total domestic demand	1,068,207,000	1,030,401,000	— 3.5	97,924,000	100,546,000	+ 2.7
Daily average	3,198,000	3,085,000	— 3.5	3,264,000	3,352,000	+ 2.7

Changes in 1938

Figures on demand for petroleum products in the whole year 1938 are not yet available, but Bureau of Mines figures covering the first 11 months of the year are presented in an accompanying table, together with corresponding figures for 1937.

These figures indicate that total demand for all United States oils was about 1.7 percent smaller in 1938 than in the record year 1937.

However, the decline would have been greater but for important gains in exports of both crude and refined oils. The exports of crude oil were 16.5 percent larger in the first 11 months of 1938 than in the corresponding period of 1937, while exports of refined products were up 7 percent.

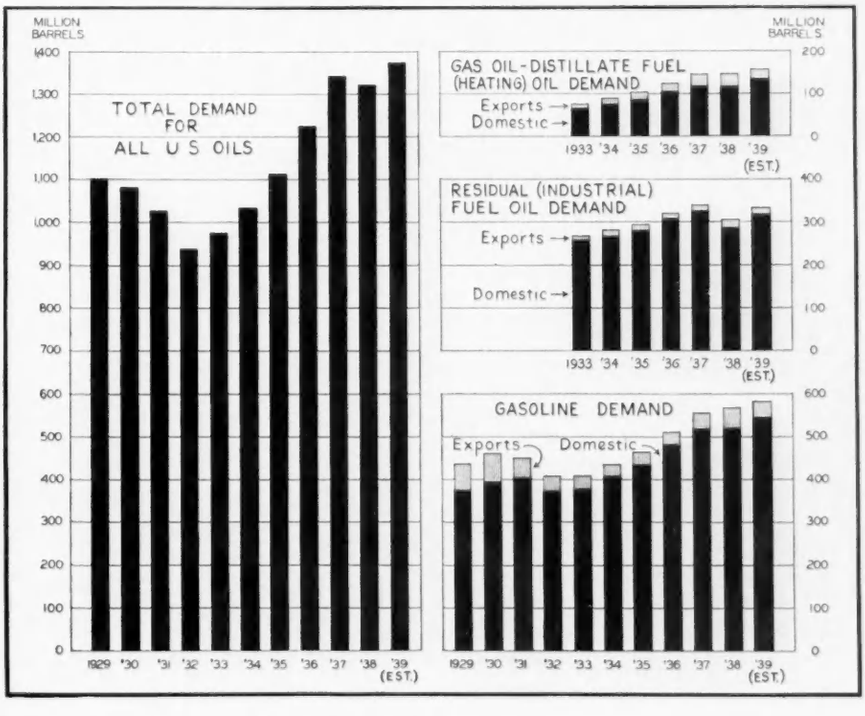
Total domestic demand, in contrast, was down 3.5 percent for the 11 months, having been curtailed primarily because of smaller use of the heavy, industrial fuel oils and the industrial lubricants.

The domestic demand for residual fuel oils in the first 11 months was 11.7 percent smaller in 1938 than in 1937. Consumption of lubricants meanwhile was 11 percent lower. Other declines included those of 1/10 of 1 percent for gas oil and distillate fuels, 5.3 percent for wax, 3.3 percent for coke, 2 percent for road oil, and 2.8 percent for still gas.

Motor fuel, kerosene, and asphalt were the only products used more extensively in the United States in 1938 than in 1937. For the first 11 months, domestic motor fuel demand was up 2/100 of 1 percent, kerosene requirements were 2 percent larger, and asphalt consumption was up 11.1 percent.

Forecasts Indicate Consumption Peaks in 1939, Following Interruption of Upward Trend in 1938

Chart based on Bureau of Mines data for 1929-1938 and estimates for 1939.


MILLION BARRELS
TOTAL DEMAND FOR ALL U S OILS
GAS OIL-DISTILLATE FUEL (HEATING) OIL DEMAND
Exports
Domestic
RESIDUAL (INDUSTRIAL) FUEL OIL DEMAND
GASOLINE DEMAND
1929 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 (EST.)

Better Trends Lately

Figures for November, 1938, also included in the accompanying table, make more favorable year-to-year comparisons than the 11 months figures and show that demand for petroleum and petroleum products is definitely improving.

In November, 1938, total demand for United States oils was 2/10 of 1 percent larger than in November, 1937.

That increase was recorded, moreover, in spite of declines in export business. The exports of crude oil were 15.7 percent smaller in November, 1938, than in November, 1937, and exports of refined products were off 13.8 percent.

Total domestic demand was 2.7 percent better in November, 1938, than in November, 1937, as various products came into wider use. Motor fuel consumption in the United States was up 5.3 percent, and other increases included those of 5.5 percent for residual fuel oils, 49.8 percent for coke, 20.8 percent for asphalt, and 4/100 of 1 percent for still gas.

U. S. Continues to Discover More Oil Than It Produces

Consistent upward trend of nation's crude reserves to new all-time levels indicates country not yet facing petroleum shortage

By WARREN L. BAKER, Editor

THE United States need not yet fear the approach of a shortage in petroleum supplies, for indications are that the nation will be able to supply consumptive demand for many more years despite anticipated future growth in the already huge quantity being consumed annually.

When the time approaches that the country is to shortly experience a scarcity of petroleum, new supplies will become increasingly harder to find at gradual rates and will not cease suddenly. That it is not yet nearing such a period is demonstrated in the recent discovery rates of both volumes and fields.

Reserves at Peak

During 1938, the United States' consistent trend in recent years of finding a larger supply of oil than it produced continued to exist, and carried the nation's estimated known unproduced reserves to another all-time peak. Moreover, the number of fields found showed a substantial gain over the previous record attained in 1937.

The volume of proven crude reserves capable of being produced over a period of years by currently-used methods, but which have not been extracted from the earth, are estimated to total 15,890,940,000 barrels as of January 1, 1939. This represents a net gain of 383,572,000 barrels from the 15,057,268,000 barrel estimate as of January 1, 1938. Since the country produced more than 1,207,000,000 barrels during the period, 1,590,815,000 barrels are indicated to have been found during the year. This includes revisions to the January 1, 1938, figure cause of extensions to known fields, as well as the additions ac-

TABLE 1
Proven Petroleum Reserves of the United States Continue to Increase

	January 1, 1925	Per-cent	January 1, 1935	Per-cent	January 1, 1937	Per-cent	January 1, 1938	Per-cent	January 1, 1939	Per-cent
West Coast:										
California	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	3,063,142,000	19.7	2,945,715,000	18.5
	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	3,063,142,000	19.7	2,945,715,000	18.5
Rocky Mountain States:										
Wyoming	296,000,000	5.6	250,000,000	2.1	239,000,000	1.9	265,922,000	1.7	266,735,000	1.6
Montana	10,000,000	0.2	60,000,000	0.5	92,000,000	0.7	109,378,000	0.7	124,500,000	0.8
Colorado	49,000,000	0.9	12,000,000	0.1	15,000,000	0.1	19,125,000	0.1	18,215,000	0.0
	355,000,000	6.7	322,000,000	2.7	346,000,000	2.7	394,425,000	2.5	409,450,000	2.4
North Mid-Continent:										
Kansas	315,000,000	5.9	400,000,000	3.3	568,000,000	4.3	601,317,000	3.9	690,965,000	4.4
Oklahoma	1,040,000,000	19.6	1,200,000,000	9.8	1,141,000,000	8.8	1,212,252,000	7.8	1,093,650,000	6.9
	1,355,000,000	25.5	1,600,000,000	13.1	1,709,000,000	13.1	1,813,569,000	11.7	1,784,615,000	11.3
Southwestern States:										
Arkansas	122,000,000	2.3	75,000,000	0.6	84,000,000	0.6	192,101,000	1.2	211,760,000	1.3
Louisiana	134,000,000	2.5	375,000,000	3.1	524,000,000	4.0	713,434,000	4.6	747,980,000	4.7
Texas	732,000,000	13.8	5,500,000,000	45.2	6,422,000,000	49.2	8,247,928,000	53.2	8,471,600,000	53.4
New Mexico	13,000,000	0.2	350,000,000	2.8	471,000,000	3.6	546,587,000	3.6	576,620,000	3.6
	1,001,000,000	18.8	6,300,000,000	51.7	7,501,000,000	57.4	9,700,050,000	62.6	10,007,960,000	63.0
Midwest and Eastern States:										
Illinois	112,000,000	2.1	35,000,000	0.3	28,000,000	0.2	40,884,000	0.3	265,000,000	1.7
Indiana	11,000,000	0.2	5,000,000	0.0	3,000,000	0.0	2,622,000	0.1	3,600,000	0.0
Kentucky	79,000,000	1.5	35,000,000	0.3	39,000,000	0.3	38,366,000	0.2	42,500,000	0.2
Michigan	.....	.....	45,000,000	0.4	44,000,000	0.3	49,181,000	0.3	51,000,000	0.3
New York	16,000,000	0.3	40,000,000	0.3	66,000,000	0.5	60,535,000	0.4	56,500,000	0.4
Ohio	120,000,000	2.2	30,000,000	0.3	32,000,000	0.3	28,456,000	0.2	26,000,000	0.2
Pennsylvania	86,000,000	1.6	240,000,000	2.0	307,000,000	2.3	287,886,000	1.8	272,500,000	1.8
West Virginia	48,000,000	0.9	25,000,000	0.2	32,000,000	0.3	28,152,000	0.2	26,000,000	0.2
	472,000,000	8.8	455,000,000	3.8	551,000,000	4.2	536,082,000	3.5	743,100,000	4.8
Total United States	5,323,000,000	100.0	12,177,000,000	100.0	13,063,000,000	100.0	15,507,268,000	100.0	15,890,840,000	100.0

Figures for 1925, 1935, 1937 and 1938 from the American Petroleum Institute. Figures for 1939 compiled by THE OIL WEEKLY staff with assistance from many engineers and geologists.

TABLE 2

United States' Rates of Discovery Increasing

PERIOD	OIL DISCOVERED		WELLS COMPLETED*		BARRELS FOUND	
	Barrels	Percent	Number	Percent	Per Well	Per Year
1859–1895.....	1,750,000,000	4.6	102,366	10.5	17,096	48,611,111
1896–1905.....	3,225,000,000	8.6	146,627	15.1	21,993	322,500,000
1906–1915.....	4,100,000,000	10.9	182,937	18.9	22,412	410,000,000
1916–1925.....	7,775,000,000	20.6	255,372	26.3	30,447	777,500,000
1926–1935.....	13,750,000,000	36.4	197,962	20.4	69,459	1,375,000,000
1936–1938.....	7,150,000,000	18.9	84,554	8.8	84,561	2,383,333,333
Total or Average..	37,750,000,000	100.0	969,818	100.0	40,995	886,157,407

* Includes all tests drilled; dry holes, gas and oil wells.

credited to new fields and new sands found during the year.

This volume becomes exceedingly significant when realized that known crude reserves today constitute 75 percent of the total quantity of oil the United States has produced in the past 79 years.

The past year saw the discovery of 264 new producing structures, which exceeded the former peak of 224 fields found in 1937. In 1936 there were only 165 new fields proven productive. Likewise, the number of new sands found in old fields rose to a peak of 160, in contrast with 136 and 58 in the preceding two years.

Since fields are to become gradually harder to locate as the ultimate total is approached, this trend of discoveries further substantiates the belief many others are to be located in the future.

Upward Trend for Years

The fact that estimated crude reserves of the nation are at an all-time peak, and that they increased materially the past year, is of importance, as it illustrates that the United States is finding more new oil than it is producing at this very time.

However, the amount of oil discovered the past year is not the only indication that the United States isn't approaching the end of its petroleum days. When considered over a longer period, crude reserve trends are just as impressive and more indicative.

The trend of known producible crude reserves, shown in Table 1, has shown a consistent upward curve for many years. They have increased 10,566,840,000 barrels, or 198 percent, since 1925. These figures certainly are reassuring, but even more impressive is the 3,713,840,000 barrel gain since 1935.

How well the United States has been able to keep its reserves in line with production is shown graphically in Figure 1. It will be noted that crude reserves have ably kept abreast of production at all times, and that in more recent years have shown a somewhat larger growth than production.

Discovery Rates Higher

Several arresting features regarding oil finding rates are well illustrated in Table 2, which shows by periods since 1895 the volume discovered, number of wells drilled, barrels found by wells and per year.

This table shows that of the 37,750,000,000 barrels discovered since the start of the industry, 55 percent has been during the last 13 years. In other words, 21,000,000,000 barrels was found during the period.

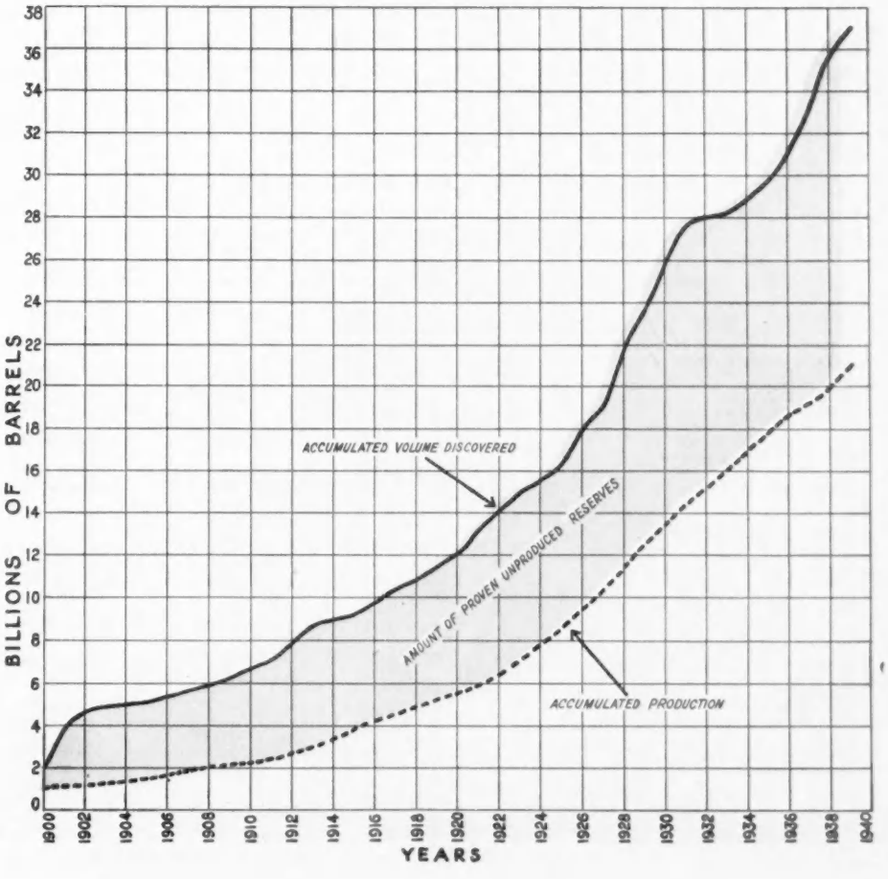
Inclusion of the figures for the three-year period, 1936-1938 inclusive, shows that the next 10-year period (ending 1945) may keep abreast of the record represented by the era 1926-1935, which saw 13,750,000,000 barrels found. During the last three years a total of 7,150,000,000 barrels has been discovered, or 18.9 percent of the aggregated volume to date. If the next seven years are as good as the last three, the 10-year period that will fall between 1936 and 1945 will exceed the amount found from 1926 to 1935. This is significant, for included in the years 1926-1935 is the East Texas field, the world's largest single discovery, and which may produce 4,000,000,000 barrels during its lifetime.

In addition to the foregoing facts, that set forth the amazing upward trend of oil discovery volumes, Table 2 also shows that the industry is becoming more efficient, in that the number of wells drilled have not increased in proportion to the quantity of oil found.

The number of barrels found per well drilled, including all types of completions, has risen rapidly. There was a fairly steady growth

FIGURE 1

United States crude reserves are increasing faster than production.



until the end of the 1916-1925 era. The great volume added by East Texas caused a sharp growth in barrels discovered per well drilled in the following 10 years, increasing it to 69,459 barrels per well.

Of great importance, however, is that the last three years have seen a still further gain. The barrels found per well during this time averaging 84,561.

Likewise, the increase in barrels found per year is gaining rapidly.

Southwest Largest Reserve

The Southwestern States, comprised of Arkansas, Louisiana, Texas and New Mexico, constitute the largest United States crude reserve area. They have 10,007,960,000 barrels, or 63 percent of the nation's total at this time.

These states are largely responsible for the growth of the nation's reserves. Since 1925, when they held but 18.8 percent of the country's total unproduced supply, they have added 9,006,960,000 barrels to their reserves, although they also have been the largest producers of crude during this time. During this same period, the entire nation was adding 10,567,840,000 barrels.

Since 1935 these same states have accounted for 3,707,960,000 barrels of the 3,713,840,000 barrel increase registered by the country. They were responsible for adding 307,910,000 barrels of the 383,572,000 barrels gained by the United States in the past year.

Texas Largest Contributor

Texas is the largest single contributor in quantity of reserves. It has 8,471,600,000 barrels, or 53.4 percent of the nation's total. Since 1925, the reserves of this state have increased 7,739,600,000 barrels, and in the last three years it has added 2,971,600,000 barrels.

The past year saw the state continue to discover more oil than it produced, although its production was nearly 500,000,000 barrels. Reserves in the state during 1938 increased 223,672,000 barrels, due to the finding of numerous fields, many of which today have but a few wells and will require upward revisions later as they are developed.

Illinois Enters Picture

Illinois became an important contributor to the United State's crude reserves during the past year, in fact adding a larger quantity than any other state. Its reserves jumped 224,116,000 barrels to 265,000,000 during the year, due in part to its smaller yield than many other areas.

This development is very significant, since Illinois was considered a "has been" state as late as January 1, 1937. Its revival indicates the possibility of new scientific methods discovering producing structures previously overlooked in other territories.

However, despite its big gain, Illinois today has but 1.7 percent of the United State's estimated known volume of oil.

California, Oklahoma Decline

California and Oklahoma showed the largest decrease in volume of crude reserves during the past year. Oklahoma produced 118,602,000 barrels more than it found, and now holds 1,093,650,000 barrels of reserves. California declined 117,427,000 barrels to 2,946,715,000 barrels.

Despite the losses, California and Oklahoma still rank second and third respectively in crude reserve rank.

It is of interest that while California's reserves today are 805,715,000 barrels greater than in 1925, that the state's percent has dropped from 40.2 to 19.7. This is the result of the huge expansion of the nation's known crude reserves.

Deeper Drilling Important

No discussion of the possibilities of discovering additional oil would be complete without much stress being placed upon deeper drilling, which offers great possibilities for new supplies. Many areas carry production from deeper depths than whence they are producing today. This is indicated by the finding of 160 new pay strata in old fields during 1938, the majority of which were at greater depths than former production. Moreover, many of the new fields found in 1938 would not have been discovered if wells had been stopped at normal depths.

Outstanding in the latter respect is the finding of 13,000-foot production in both California and Louisiana during the year.

Conclusions Favorable

There will be no sudden cessation in the discovery rates of new fields and volumes of oil, as they will become gradually more difficult to find as exhaustion nears.

Therefore, with the present trend of discovery rates being sufficiently great to consistently increase the volume of known crude reserves to record levels despite large production; with the exceptionally large number of fields being found annually; with deeper drilling offering practically unlimited possibilities; plus anticipated mechanical improvements that will result in greater ultimate recoveries and with a vast area in which producing structures may be found—it would seem the United States need not fear any immediate inability to produce enough petroleum to meet its consumption demands.

TABLE 3

Southwestern States Have Had Largest Reserve Increase

	CHANGES IN CRUDE RESERVES TO JANUARY 1, 1939		
	Since Jan. 1, 1925	Since Jan. 1, 1935	Since Jan. 1, 1938
West Coast:			
California	+ 805,715,000	— 554,285,000	— 117,427,000
	+ 805,715,000	— 554,285,000	— 117,427,000
Rocky Mountain States:			
Wyoming	— 29,265,000	+ 16,735,000	+ 813,000
Montana	+ 114,500,000	+ 64,500,000	+ 15,122,000
Colorado	— 30,785,000	+ 6,215,000	— 910,000
	+ 54,450,000	+ 87,450,000	+ 15,025,000
North Mid-Continent:			
Kansas	+ 375,965,000	+ 290,965,000	+ 89,648,000
Oklahoma	+ 53,650,000	— 106,350,000	— 118,602,000
	+ 429,615,000	+ 184,615,000	— 28,954,000
Southwestern States:			
Arkansas	+ 89,760,000	+ 136,760,000	+ 19,659,000
Louisiana	+ 613,980,000	+ 372,980,000	+ 34,546,000
Texas	+ 7,739,600,000	+ 2,971,600,000	+ 223,672,000
New Mexico	+ 563,620,000	+ 226,620,000	+ 30,033,000
	+ 9,006,960,000	+ 3,707,960,000	+ 307,910,000
Midwest and Eastern States:			
Illinois	+ 153,000,000	+ 230,000,000	+ 224,116,000
Indiana	— 7,400,000	— 1,400,000	+ 978,000
Kentucky	— 36,500,000	+ 7,500,000	+ 4,134,000
Michigan	+ 51,000,000	+ 6,000,000	+ 1,819,000
New York	+ 40,500,000	+ 16,500,000	— 4,035,000
Ohio	— 94,000,000	— 4,000,000	— 2,456,000
Pennsylvania	+ 186,500,000	+ 32,500,000	— 15,386,000
West Virginia	— 22,000,000	+ 1,000,000	— 2,152,000
	+ 271,100,000	+ 288,100,000	+ 207,018,000
T al United States	+10,567,840,000	+ 3,713,840,000	+ 383,572,000

Increase of World Oil Output in 1939 Likely

Total production down 3.3 percent in 1938 from all-time peak of 1937, as United States shows decline, while remainder of world is unchanged

By L. J. LOGAN, Associate Editor

WORLD production of crude oil in 1939 possibly will approximate the all-time record of 2,042,007,000 barrels, set in 1937, after having dropped 3.3 percent below that peak in 1938.

Almost certainly, there will be in 1939 at least some increase in world production, whether or not the 1937 record is equaled.

The countries outside the United States, accounting for nearly 40 percent of world output, produced practically the same amount of crude in 1938 as in the previous year; and they probably will show an increase, in the aggregate, in 1939. For the trend of production abroad has been consistently upward in recent years, and in view of the present outlook for world business conditions, a normal trend is to be expected this year.

In the United States, crude oil production declined 5.2 percent in 1938, largely because of less favorable demand, after having reached an all-time peak in the previous year. But a resumption of the normal upward trend of United States production, arising from the growth of petroleum consumption, probably will occur in 1939, because of the improved business situation; although the year's production may not differ materially from that of 1938.

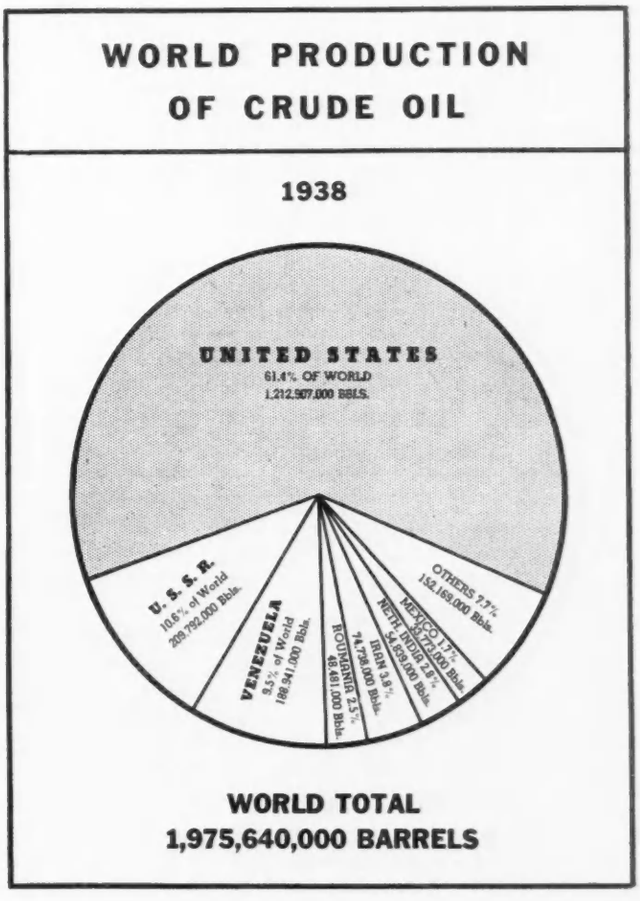
Preliminary figures indicate that world production of crude oil in 1938 totaled 1,975,640,000 barrels, which was 3.3 percent less than the record output of 2,042,007,000 barrels in 1937.

The United States, in producing 1,212,907,000 barrels in 1938, showed a decrease of 5.2 percent, and became somewhat less dominant in the world production picture. The country's output in 1938 constituted 61.4 percent of the world total, whereas its production in 1937 had represented 62.6 percent of the world figure.

The countries outside the United States had a combined production of 762,733,000 barrels in 1938, practically the same as that of 762,847,000 barrels in 1937. Their output was 38.6 percent of the world total in 1938, as compared with only 37.4 percent in 1937.

The leading producing countries maintained in 1938 the same relative positions as in 1937, except Roumania, which showed a further substantial decline and dropped behind Iran and Netherlands India. Thus for the year, the United States ranked first among the world's oil producing countries, U.S.S.R. second, Venezuela third, Iran fourth, Netherlands India fifth, Roumania sixth.

About three fourths of the countries produced more crude oil in



1938 than in 1937. Those showing increases included: U.S.S.R., Venezuela, Iraq, British India, Trinidad, Argentina, Colombia, Ecuador, Canada, Bahrein Island, Germany, Poland, British Borneo, Japan, Egypt, France, Czechoslovakia and Sakhalin.

On the other hand, declines occurred in the United States, Iran, Netherlands India, Roumania, Mexico, Italy, Peru, and Bolivia.

Among the increases in 1938, those for Canada, Germany, British Borneo, Trinidad, and Bahrein Island were larger than average, from a percentage standpoint. Canada's output of 8,002,000 barrels in 1938 was nearly three times as great as that of

World Crude Oil Production, by Countries, by Years

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	Rumania	United States	Italy	Canada	Russia except Sakhalin	Poland (Galacia)	Japan and Taiwan	Germany	India (British)	Netherland India	Peru	Mexico	Argentina	Trinidad	YEAR
1857	[A]1,977														1857
1858	3,560														1858
1859	4,349	[A]2,000													1859
1860	8,542	500,000	[A]36												1860
1861	17,279	2,113,609	29												1861
1862	23,198	3,056,690	29	[A]11,775											1862
1863	27,943	2,611,309	58	82,814	[A]40,816										1863
1864	33,013	2,116,109	72	90,000	64,586										1864
1865	39,017	2,497,700	2,265	110,000	66,542										1865
1866	42,534	3,597,700	992	175,000	83,052										1866
1867	50,838	3,347,300	791	190,000	119,917										1867
1868	55,369	3,646,117	367	200,000	88,327										1868
1869	58,533	4,215,000	144	220,000	202,308										1869
1870	83,765	5,260,745	86	250,000	204,618										1870
1871	90,030	5,205,234	273	269,397	165,129										1871
1872	91,251	6,293,194	331	308,100	184,391										1872
1873	104,036	9,893,786	467	365,052	474,379										1873
1874	103,177	10,926,945	604	168,807	583,751	[A]149,837									1874
1875	108,569	8,787,514	813	220,000	697,364	158,522	[A]4,566								1875
1876	111,314	9,132,669	2,891	312,000	1,320,528	164,157	7,708								1876
1877	108,569	13,350,363	2,934	312,000	1,800,720	169,792	9,560								1877
1878	109,800	15,396,868	4,329	312,000	2,400,960	175,420	17,884								1878
1879	110,007	19,914,146	2,891	575,000	2,761,104	214,800	23,467								1879
1880	114,321	26,286,123	2,035	350,000	3,001,200	229,120	25,497	[A]9,310							1880
1881	121,511	27,661,238	1,237	275,000	3,601,441	286,400	16,751	29,219							1881
1882	136,610	30,349,897	1,316	275,000	4,537,815	330,076	15,549	58,025							1882
1883	139,486	23,449,633	1,619	250,000	6,002,401	365,160	20,473	26,708							1883
1884	210,667	24,218,438	2,855	250,000	10,804,577	408,120	27,925	46,161							1884
1885	193,411	21,858,785	1,941	250,000	13,924,596	465,400	29,237	41,360							1885
1886	168,606	28,064,841	1,575	584,061	18,006,407	305,884	37,916	73,864							1886
1887	181,907	28,283,483	1,496	525,655	18,367,781	343,832	28,645	74,284							1887
1888	218,576	27,612,025	1,251	695,203	23,048,787	466,537	37,436	84,782							1888
1889	297,666	35,163,513	1,373	704,690	24,609,407	515,268	52,811	68,217	[A]94,250						1889
1890	383,227	45,823,572	2,998	795,030	28,691,218	659,012	51,420	108,396	118,065						1890
1891	488,201	54,292,655	3,305	755,298	34,573,181	630,730	52,917	108,929	190,131						1891
1892	593,175	50,514,657	18,321	779,753	35,774,504	646,220	68,901	101,404	242,284						1892
1893	535,655	48,431,066	19,069	798,406	40,456,519	692,669	106,384	99,390	298,969	[A]600,000					1893
1894	507,255	49,344,516	20,552	829,104	36,375,428	949,146	[B]173,000	122,564	327,218	688,170					1894
1895	575,200	52,892,276	25,843	726,138	46,140,174	1,452,999	170,000	121,277	371,536	1,215,757					1895
1896	543,348	60,960,361	18,149	726,822	47,220,633	2,443,080	237,000	145,061	429,979	1,427,132	[A]47,536				1896
1897	570,886	60,475,516	13,892	709,857	54,399,568	2,226,368	262,000	165,745	545,704	2,551,649	70,831				1897
1898	776,238	55,364,233	14,489	758,391	61,609,357	2,376,108	319,000	183,427	542,110	2,964,035	70,905				1898
1899	1,425,777	57,070,850	16,121	808,570	65,954,968	2,313,047	539,000	192,232	940,971	1,795,961	89,166				1899
1900	1,628,535	63,620,529	12,102	913,498	75,779,417	2,346,505	871,000	358,297	1,078,264	2,253,355	274,800				1900
1901	1,678,320	69,389,194	16,150	756,679	85,168,556	3,251,544	1,117,000	313,630	1,430,716	4,013,710	274,800	[A]10,345			1901
1902	2,059,935	88,766,916	18,933	530,624	80,540,044	4,142,159	996,000	353,674	1,617,363	2,430,465	286,725	40,200			1902
1903	2,763,117	100,461,337	17,876	486,637	75,591,256	5,234,475	1,209,000	445,818	2,510,259	5,770,056	278,092	75,375			1903
1904	3,599,026	117,080,960	25,476	552,575	78,526,655	5,947,383	1,219,000	637,431	3,385,468	6,508,485	[B]290,000	125,625			1904
1905	4,420,987	134,717,580	44,027	634,095	54,960,270	5,765,317	1,347,000	560,963	4,137,098	7,849,896	373,000	251,250			1905
1906	6,378,184	126,493,936	53,577	569,753	58,897,311	5,467,967	1,564,000	578,610	4,015,903	8,180,657	531,000	502,500			1906
1907	8,118,207	166,095,335	59,875	788,872	[C]1,850,734	8,455,841	1,718,000	756,631	4,344,162	9,982,597	751,000	1,005,000	[A]101		1907
1908	8,252,157	178,527,355	50,966	527,587	62,186,447	12,612,295	1,871,000	1,009,278	5,047,038	10,283,357	945,000	3,932,900	11,472	[A]169	1908
1909	9,327,278	183,170,874	42,388	420,755	65,970,350	14,932,799	1,887,000	1,018,837	6,676,517	11,041,852	1,411,000	2,713,500	18,431	57,143	1909
1910	9,723,806	209,557,248	50,830	315,895	70,336,574	12,673,688	1,829,000	1,032,522	6,137,990	11,030,620	1,258,000	3,634,080	20,753	142,857	1910
1911	11,107,450	220,449,391	74,709	291,096	66,183,691	10,519,270	1,737,000	1,017,045	6,451,203	12,172,949	1,465,000	12,552,798	13,119	285,307	1911
1912	12,976,232	222,935,044	53,778	243,336	68,019,208	8,535,174	1,659,000	1,031,050	7,116,672	10,845,624	1,752,000	16,558,215	47,007	436,805	1912
1913	13,554,768	248,446,230	47,198	228,080	62,834,356	7,818,130	1,940,000	[B]857,000	7,930,149	11,172,294	2,071,000	25,696,291	130,618	503,616	1913
1914	12,826,579	265,762,535	39,849	214,805	67,020,522	[B]6,436,000	2,636,000	781,000	7,409,792	[B]11,422,000	1,837,000	26,235,403	275,500	643,533	1914
1915	12,029,913	281,104,104	43,898	215,464	68,548,062	5,352,000	2,928,000	703,000	8,202,674	11,920,000	2,579,000	32,910,508	[B]513,000	750,000	1915
1916	8,945,029	300,767,158	50,585	198,123	[B]65,817,000	6,587,000	2,963,000	656,000	8,491,137	12,547,000	2,593,000	39,817,402	867,000	928,581	1916
1917	3,720,760	335,315,601	40,763	213,832	63,072,000	6,228,000	2,861,000	642,000	8,078,843	13,180,000	2,577,000	55,292,770	1,218,000	1,602,312	1917
1918	[B]8,730,000	355,927,716	[B]35,000	304,741	27,168,000	6,032,000	2,441,000	270,000	[B]8,188,000	12,778,000	2,527,000	[B]63,828,000	1,353,000	2,062,068	1918
1919	6,618,000	[B]378,367,000	35,000	[B]241,000	31,752,000	6,096,000	2,238,000	265,000	8,736,000	15,508,000	2,628,000	87,073,000	1,331,000	[B]1,841,000	1919
1920	7,435,000	442,929,000	35,000	196,000	25,430,000	5,607,000	2,221,000	246,000	8,375,000	17,529,000	2,817,000	157,069,000	1,651,000	2,083,000	1920
1921	8,368,000	472,183,000	32,000	188,000	28,968 000	5,167,000	2,233,000	274,000	8,734,000	16,958,000	3,609,000	193,398,000	2,036,000	2,354,000	1921
1922	9,843,000	557,531,000	31,000	179,000	35,692,000	5,227,000	2,055,000	319,000	8,529,000	17,066,000	5,314,000	182,278,000	2,866,000	2,445,000	1922
1923	10,867,000	732,407,000	34,000	170,000	39,147,000	5,402,000	1,804,000	346,000	8,406,000	19,870,000	5,699,000	149,585,000	3,400,000	3,051,000	1923
1924	13,369,000	713,940,000	39,000	161,000	45,355,000	5,657,000	1,814,000	406,000	8,416,000	20,473,000	8,379,000	139,678,000	4,639,000	4,057,000	1924
1925	16,650,000	763,743,000	61,000	332,000	52,448,000	5,980,000	1,915,000	541,000	8,274,000	21,422,000	9,232,000	115,515,000	6,336,000	4,387,000	1925
1926	23,314,000	770,874,000	41,000	364,000	64,311,000	5,844,000	1,785,000	653,000	8,011,000	21,243,000	10,762,000	90,421,000	7,851,000	4,971,000	1926
1927	26,368,000	901,129,000	47,000	477,000	77,018,000	5,342,000	1,789,000	663,000	8,032,000	27,459,000	10,127,000	64,121,000	8,630,000	5,380,000	1927
1928	30,773,000	901,474,000	46,000	624,000	[B]84,745,000	5,492,000	1,944,000	630,000	8,741,000	32,118,000	12,006,000	50,151,000	9,070,000	7,684,000	1928
1929	34,758,000	1,007,323,000	45,000	1,117,000	[B]99,507,000	4,988,000	2,023,000	704,000	8,747,000	39,279,000	13,422,000	44,688,000	9,391,000	8,716,000	1929
1930	42,759,000	898,011,000	59,000	1,522,000	[B]125,555,000	4,904,000	2,047,000	1,222,000	8,887,000	41,729,000	12,449,000	39,530,000	9,002,000	9,419,000	1930
1931	49,741,000	851,081,000	124,000	1,543,000	162,842,000	4,662,000	1,966,000	1,608,000	8,715,000	35,539,000	10,089,000	33,039,000	11,709,000	9,744,000	1931
1932	53,815,000	785,159,000	208,000	1,044,000	154,367,000	4,116,000	1,630 000	1,608,000	8,817,000	39,001,000	9,899,000	32,805,000	13,139,000	10,126,000	1932
1933	54,020,000	905,656,000	204,000	1,145,000	154,840,000	4,072,000	1,455,000	1,665,000	8,743,000	42,606,000	13,257,000	34,001,000	13,691,000	9,561,000	1933
1934	62,063,000	908,065,000	151,000	1,417,000	174,318,000	3,913,000	1,834,000	2,187,000	10,503,000	46,925,000	16,314,000	38,172,000	14,024,000	10,894,000	1934
1935	61,310,000	996,596,000	119,000	1,447,000	182,386,000	3,812,000	2,250,000	2,996,000	9,219,000	47,171,000	17,067,000	40,241,000	14,297,000	11,671,000	1935
1936	63,655,000	1,099,687,000	120,000	1,500,000	197,418,000	3,788,000	2,445,000	3,115,000	9,566,000	50,026,000	17,593,000	41,028,000	15,458,000	13,237,000	1936
1937	52,176,000	1,279,160,000	107,000	2,978,000	199,475,000	3,708,000	2,487,000	3,177,000	9,852,000	56,275,000	17,467,000	46,907,000	16,236,000	15,503,000	1937
1938[1]	48,481,000	1,212,907,000	103,000	8,002,000	207,372,000	3,827,000	2,497,000	4,263,000	9,867,000	54,839,000	15,894,000	33,773,000	16,269,000	17,677,000	[1]1938
Total	827,791,176	21,186,793,719	2,613,718	49,072,770	3,989,784,907	255,059,251	77,560,035	41,771,041	283,520,365	849,661,621	238,466,855	1,898,655,162	185,494,001	162,233,391	Total

[A] Actual numbers of barrels are shown prior to 1918, as reported in *Mineral Resources*, 1918; except in cases where revisions have been made in later reports, with such revisions being in thousands of barrels.

[B] Figures beginning with this year are shown in nearest thousand barrels, being from *Mineral Resources* of 1930, and 1931: and from *Minerals Yearbook* in subsequent years.

[C] Production of France in previous years credited to Germany.

[D] No more data available.

2,978,000 barrels in 1937. Germany produced 4,263,000 barrels, or 34 percent more than in the previous year. A 17 percent increase pushed British Borneo's output to 7,085,000 barrels in 1938. Trinidad production rose 14 percent, to 17,677,000 barrels. Bahrein Island showed a 9 percent increase in producing 8,484,000 barrels.

The smaller increases included those of 4 percent for U.S.S.R., 2 percent each for Venezuela and Iraq, and 6 percent for Colombia.

All decreases were less than 10 percent except those of 28 percent for Mexico and 13 percent for Bolivia.

World Crude Oil Production, by Countries, by Years—(Continued)

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	Egypt	Iran (Persia)	British Borneo (Sarawak And Brunei)	Algeria	Ecuador	Venezuela	France	England	Czechoslovakia	Sakhalin	Colombia	Iraq	Bolivia	Bahrein Island	Other Countries	Total World	Percent Produced by U.S.	YEAR
1857																1,977		1857
1858																3,560		1858
1859																6,349	31	1859
1860																508,578	98	1860
1861																2,130,917	99	1861
1862																3,091,692	99	1862
1863																2,762,940	94	1863
1864																2,303,780	92	1864
1865																2,715,524	92	1865
1866																3,899,278	92	1866
1867																3,708,846	90	1867
1868																3,990,180	91	1868
1869																4,695,985	90	1869
1870																5,799,214	91	1870
1871																5,730,063	91	1871
1872																6,877,267	92	1872
1873																10,837,720	91	1873
1874																11,933,121	92	1874
1875																9,977,348	88	1875
1876																11,051,267	83	1876
1877																15,753,938	85	1877
1878																18,416,761	84	1878
1879																23,601,405	84	1879
1880																30,017,606	88	1880
1881																31,992,797	86	1881
1882																35,704,288	85	1882
1883																30,255,479	78	1883
1884																35,968,741	67	1884
1885																36,764,730	59	1885
1886																47,243,154	59	1886
1887																47,807,083	59	1887
1888																52,164,597	53	1888
1889																61,507,095	57	1889
1890																76,632,838	60	1890
1891																91,100,347	60	1891
1892																88,739,219	57	1892
1893																92,038,127	53	1893
1894																89,336,953	55	1894
1895																103,691,200	51	1895
1896																114,199,101	53	1896
1897																121,992,016	50	1897
1898																124,978,293	44	1898
1899																131,146,663	44	1899
1900																149,136,302	48	1900
1901															20,000	167,440,644	41	1901
1902															26,000	181,809,038	49	1902
1903															36,000	194,879,298	52	1903
1904															40,000	217,948,084	54	1904
1905															30,000	215,091,483	63	1905
1906															30,000	213,263,298	59	1906
1907															30,000	263,956,355	63	1907
1908															30,000	285,287,421	63	1908
1909															20,000	298,708,724	61	1909
1910															20,000	327,763,863	64	1910
1911	[B]21,000														20,000	344,361,028	64	1911
1912	214,603														20,000	352,443,145	63	1912
1913	98,000	[B]1,857,000	[B]141,000												20,000	385,345,730	64	1913
1914	753,000	2,910,000	318,000	[B]1,000											20,000	407,542,518	65	1914
1915	212,000	3,616,000	392,000	4,000											10,000	432,033,623	65	1915
1916	404,000	4,477,000	629,000	8,000											25,000	456,771,015	66	1916
1917	943,000	7,147,000	542,000	9,000	[B]57,000	[B]120,000	C								29,000	502,889,881	67	1917
1918	1,935,000	8,623,000	504,000	7,000	[E]60,000	333,000	[B]363,000								25,000	503,514,525	71	1918
1919	1,517,000	10,139,000	596,000	5,000	[E]60,000	425,000	334,000	[B]2,000	[B]48,000						20,000	555,875,000	68	1919
1920	1,042,000	12,230,000	1,020,000	4,000	[E]60,000	457,000	356,000	3,000	69,000						20,000	688,884,000	64	1920
1921	1,255,000	16,673,000	1,411,000	3,000	[E]60,000	1,433,000	389,000	3,000	94,000	[B]2,000	[B]67,000				20,000	766,002,000	62	1921
1922	1,188,000	22,247,000	2,849,000	9,000	[E]60,000	2,201,000	496,000	1,000	120,000	7,000	323,000				22,000	858,898,000	65	1922
1923	1,054,000	25,230,000	3,940,000	9,000	87,000	4,201,000	494,000	1,000	74,000	9,000	425,000				24,000	1,015,736,000	72	1923
1924	1,122,000	32,373,000	4,163,000	11,000	[E]100,000	9,042,000	497,000	2,000	76,000	80,000	445,000				24,000	1,014,318,000	70	1924
1925	1,226,000	35,038,000	4,257,000	12,000	160,000	19,687,000	459,000	3,000	158,000	87,000	1,007,000				23,000	1,068,933,000	71	1925
1926	1,188,000	35,842,000	4,942,000	9,000	214,000	36,911,000	478,000	2,000	150,000	181,000	6,444,000				17,000	1,096,823,000	70	1926
1927	1,267,000	39,688,000	4,943,000	8,000	537,000	63,134,000	504,000	2,000	112,000	440,000	15,014,000	[B]338,000			13,000	1,262,582,000	71	1927
1928	1,842,000	43,461,000	[G]5,223,000	8,000	1,084,000	105,749,000	512,000	1,000	94,000	677,000	19,897,000	713,000			15,000	1,324,774,000	68	1928
1929	1,868,000	42,145,000	5,290,000	20,000	1,381,000	137,472,000	535,000	D	93,000	[E]1,134,000	20,385,000	798,000	H		38,000	1,485,867,000	68	1929
1930	1,996,000	45,833,000	4,907,000	16,000	1,553,000	136,669,000	523,000	H	157,000	[E]1,805,000	20,346,000	909,000	[B]56,000		40,000	1,411,905,000	64	1930
1931	2,038,000	44,376,000	3,854,000	D	1,762,000	116,613,000	527,000	D	134,000	2,734,000	18,237,000	900,000	25,000		54,000	1,373,656,000	62	1931
1932	1,895,000	49,471,000	3,796,000	D	1,597,000	116,541,000	530,000	D	126,000	2,631,000	16,414,000	836,000	44,000		62,000	1,309,677,000	60	1932
1933	1,663,000	54,392,000	4,490,000	D	1,620,000	117,720,000	562,000	D	122,000	2,338,000	13,158,000	917,000	112,000	31,000	71,000	1,442,112,000	63	1933
1934	1,546,000	57,851,000	5,140,000	D	1,637,000	136,103,000	557,000	D	178,000	2,881,000	17,341,000	7,689,000	159,000	285,000	96,000	1,522,243,000	59.7	1934
1935	1,295,000	57,304,000	5,546,000	4,000	1,732,000	148,529,000	539,000	D	133,000	2,545,000	17,595,000	27,311,000	164,000	1,265,000	144,000	1,654,688,000	60.2	1935
1936	1,277,000	62,699,000	5,343,000	3,000	1,951,000	154,794,000	535,000	D	127,000	2,218,000	18,752,000	30,307,000	105,000	4,645,000	394,000	1,801,786,000	61.0	1936
1937	1,149,000	78,741,000	6,026,000	22,000	2,161,000	185,701,000	503,000	D	123,000	2,380,000	20,293,000	30,604,000	122,000	7,763,000	911,000	2,042,007,000	62.6	1937
1938[I]	1,494,000	74,738,000	7,085,000	D	2,260,000	188,941,000	517,000	D	129,000	2,420,000	21,451,000	31,096,000	106,000	8,484,000	1,148,000	1,975,640,000	61.4	[I]1938
Total	33,502,000	869,101,000	87,347,000	172,000	20,193,000	1,682,776,000	10,210,000	20,000	2,317,000	24,569,000	227,594,000	132,418,000	893,000	22,473,000	3,607,000	33,165,670,012	63.9	Total

[E] Year ended September 30.
[F] Estimated.
[G] Beginning of production from Brunei.
[H] Less than one thousand barrels.

[I] For 1938, figures for countries outside the United States are preliminary, having been estimated by THE OIL WEEKLY.

More Refined Oils But Less Crude in Storage

Stocks of all oils in United States approximately same as year ago, as additions of refined products to storage have about equaled withdrawals of crude.

By L. J. LOGAN, Associate Editor

ALTHOUGH there is some danger of unwarranted building up of oil inventories in 1939, the present storage situation of the petroleum industry is generally satisfactory. And unless the stocks are appreciably increased in coming months, through excessive crude production and refinery runs, they probably will not be too high to permit favorable markets.

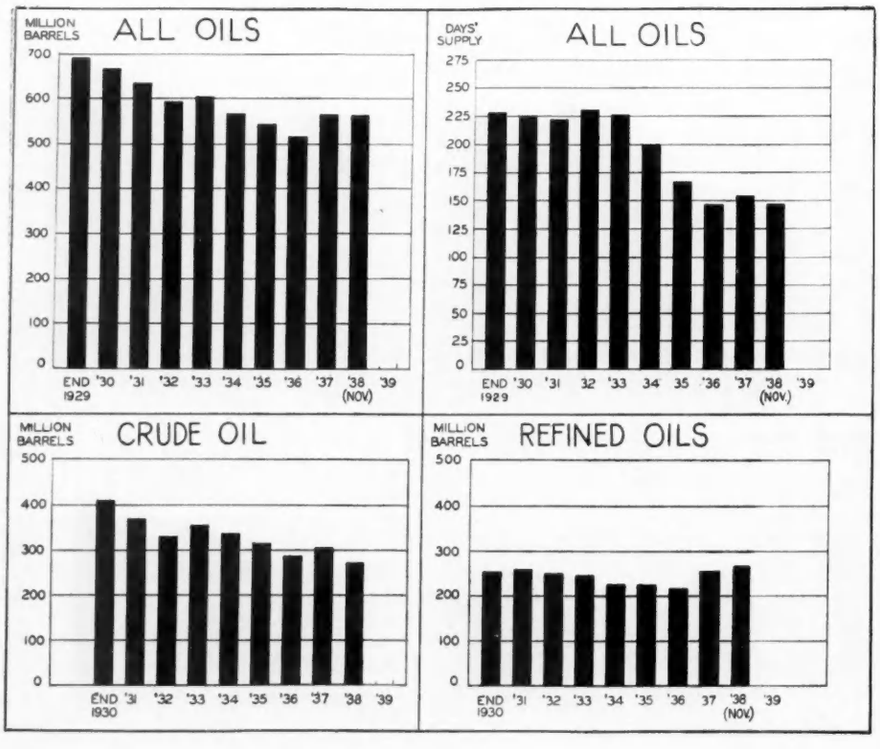
However, the industry must remain perennially on guard against the accumulation of surplus stocks, and the need for holding a lid over storage is at present especially urgent, in view of various threats of over-production of crude this year and the relatively large quantities of refined oils now on hand.

In 1938 the industry succeeded in materially reducing surplus stocks of crude oil. But it was not so successful in regulating refinery operations, and inventories of refined oils were permitted to increase excessively.

In 1939 further elimination of surplus crude stocks and better control over refinery output would be desirable. But it is doubtful if material reductions of surplus crude storage can be accomplished, in view of present and prospective high levels of current production. And so far this year, refinery runs have been higher than desirable, and a repetition of last year's over-building of refined oil inventories is threatened for 1939.

Stocks of All Oils Unchanged from Year Ago but Lower in Relation to Demand, Which Has Shown Improvement

Chart is based on Bureau of Mines data.



Stocks of All Oils

In 1938 practically no change occurred in the quantity of all oils in storage in the United States. The total stood on November 30, 1938, at 563,034,000 barrels, as compared with the level of 562,714,000 barrels at the end of November, 1937.

In relation to prevailing consumption, however, the present stocks of all oils are a little lower than those held a year ago. The stocks of November 30, 1938, represented 147 days' supply at the November, 1938, rates of consumption, whereas the storage on hand November 30, 1937, was the equivalent of 148 days' supply at the rates of consumption that then prevailed.

Crude Storage Reduced

Although there was virtually no change in 1938 in the stocks of all oils, crude storage was materially reduced, while inventories of refined products were increased by approximately the same amount.

The stocks of crude oil in the United States were brought down 30,000,000 barrels, or 10 percent, in 1938, having stood on December 31,

Stocks of All Oils Nearly Same as Year Ago, as Gains for Refined Oils Have Equaled Withdrawals from Crude Storage

STOCKS	Barrels on Hand at Beginning of December		Percent Change from Year Ago
	1937	1938	
Crude petroleum:			
Refinable in U. S.	306,457,000	273,155,000	—19.9
Heavy in Calif.	(*)	16,765,000	..
Natural gasoline	5,147,000	5,742,000	+11.6
Refined products	251,110,000	267,372,000	+ 6.5
Total, all oils	562,714,000	563,034,000	+ 0.06
Day's supply	148	147	— 0.07

* Not available.

1938, at 273,024,000 barrels. They fell to a 17-year low of 269,509,000 barrels in the week ended December 10, but in the closing weeks of the year increased several million barrels.

Nearly all of the withdrawals from crude storage occurred at tank farms, producers' stocks and stocks at refineries having remained about the same.

Withdrawals from tank farm storage were especially large in Oklahoma, Kansas, and North Texas, those areas having accounted for a 20,000,000 barrel reduction, which was the equivalent of two thirds of the national decline.

Other large withdrawals included those of approximately 7,000,000 barrels in West Texas and New Mexico, 6,500,000 barrels in East Texas, and 4,000,000 barrels in the Rocky Mountain States. Slight reductions of stocks were made, meanwhile, in North Louisiana and Arkansas and in the Michigan-Ohio-Northeast Indiana region.

Partially offsetting these withdrawals were additions to crude storage in several districts, including those of 4,000,000 barrels in California, approximately 1,000,000 barrels each in the Gulf Coast and Illinois-Southwest Indiana regions, and 500,000 barrels in the Appalachian states.

Despite the fact that the 30,000,000 barrel withdrawal of 1938 brought crude oil stocks down to the lowest level for 17 years, the storage tanks still include large quantities of crude that the owners would like to liquidate.

At a proration hearing of the Texas Railroad Commission late in 1938, executives of several large companies indicated that those concerns still held substantial quantities of surplus crude. Figures presented at the hearing indicated that about 225,000,000 barrels of crude storage, nearly 50,000,000 barrels less than the present stocks, would be adequate.

Several months ago the Bureau of Mines issued a comprehensive report which indicated that crude stocks of 200,000,000 to 250,000,000 barrels would be sufficient. And that conclusion was fairly well confirmed by the evidence presented at the Texas Railroad Commission hearing.

Refined Oil Stocks

Total stocks of refined products in the United States were increased 16,000,000 barrels, or 6.5 percent, between November 30, 1937, and November 30, 1938, having risen to 267,372,000 barrels as of the latter date.

The increase was accounted for largely by gains of 8,000,000 barrels in stocks of residual fuel oils, the heavy oils used as fuel by industry, and 5,000,000 barrels in gas oil and distillate fuels, used chiefly for heating. Gasoline stocks showed practically no change.

The gain in heavy oil stocks represented a backing up of supplies, having resulted from curtailed industrial production; but that for the light oils was intentional, having occurred in response to larger demand.

Similarly, a 1,000,000 barrel increase in stocks of lubricants occurred because of lagging demand, but a like addition to kerosene storage was justified by greater consumption.

The only other product added to storage was coke.

Withdrawals from storage of refined products in 1938 were limited to those for road oil, asphalt, and wax.

Inventories of Fuel Oils, Kerosene, and Lubricants Larger than Year Ago, but Those of Gasoline Smaller

PRODUCT	Barrels on Hand at Beginning of December		Percent Change from Year Ago
	1937	1938	
Motor Fuel:			
Finished gasoline	63,728,000	64,083,000	+ 0.6
Natural gasoline	5,147,000	5,742,000	+11.6
Unfinished gasoline	6,900,000	5,452,000	—20.9
Kerosene	8,357,000	9,676,000	+15.8
Gas oil and distillate fuels	26,852,000	32,069,000	+19.4
Residual fuel oils	93,225,000	101,569,000	+ 8.9
Lubricants	6,907,000	7,817,000	+13.2
Wax (pounds)	139,867,000	131,772,000	— 5.8
Coke (short tons)	366,200	678,400	+85.2
Asphalt (short tons)	510,400	447,600	—12.3
Road oil	945,000	660,000	—30.1
Miscellaneous	206,000	260,000	+26.2
Other unfinished oils	38,853,000	39,461,000	+ 1.6

Stocks of Crude Petroleum Reduced Materially in Past Year

(Barrels)

	November 30, 1937	November 30, 1938	Percent Change
At Refineries by Location:			
East Coast:			
Domestic	11,227,000	8,723,000	— 22.3
Foreign	2,397,000	1,960,000	— 18.4
Appalachian	1,008,000	1,091,000	+ 8.2
Indiana, Illinois, Kentucky, Michigan	3,591,000	4,343,000	+ 20.9
Oklahoma, Kansas and Missouri	4,456,000	3,901,000	— 12.4
Texas:			
Inland	1,660,000	1,608,000	— 3.9
Gulf Coast:			
Domestic	11,404,000	12,172,000	+ 6.7
Foreign	117,000	276,000	+135.8
Louisiana Gulf Coast:			
Domestic	3,474,000	3,131,000	— 9.9
Foreign	520,000	401,000	— 22.9
Arkansas and Inland Louisiana	1,457,000	973,000	— 33.2
Rocky Mountain	2,002,000	1,896,000	— 5.3
California	8,345,000	9,654,000	+ 15.6
Total	51,658,000	50,129,000	+000.0
At Refineries by Origin:			
Pennsylvania Grade	840,000	846,000	+ 0.7
Other Appalachian (including Kentucky)	355,000	457,000	+ 28.7
Lima-Northeast Indiana-Michigan	404,000	454,000	+ 12.4
Illinois-Southwest Indiana	155,000	564,000	+263.9
North Louisiana and Arkansas	3,387,000	1,979,000	— 41.6
West Texas and Southeast New Mexico	4,420,000	4,195,000	— 5.1
East Texas	5,404,000	2,924,000	— 45.9
Oklahoma, Kansas, North Texas, etc	14,098,000	14,465,000	+ 2.6
Gulf Coast	9,102,000	9,854,000	+ 8.3
Rocky Mountain	2,068,000	2,011,000	— 2.7
California	8,391,000	9,743,000	+ 16.1
Foreign	3,034,000	2,637,000	— 13.1
Total	51,658,000	50,129,000	— 2.9
Pipe-Line and Tank-Farm:			
Pennsylvania Grade	3,928,000	4,696,000	+ 19.5
Other Appalachian (including Kentucky)	697,000	760,000	+ 9.0
Lima-Northeast Indiana-Michigan	683,000	662,000	— 3.1
Illinois-Southwest Indiana	9,535,000	10,430,000	+ 9.4
North Louisiana and Arkansas	6,374,000	6,033,000	— 5.3
West Texas and Southeast New Mexico	26,757,000	19,572,000	— 26.8
East Texas	22,226,000	15,644,000	— 29.6
Oklahoma, Kansas, North Texas, etc	114,590,000	94,146,000	— 17.8
Gulf Coast	17,169,000	17,903,000	+ 4.3
Rocky Mountain	22,312,000	18,509,000	— 17.0
California	19,030,000	23,241,000	+ 22.1
Total	243,301,000	211,596,000	— 13.0
Lease (Producers') Stocks[1]	11,498,000	11,430,000	— 0.6
Total Refinable Crude in the United States	306,457,000	273,155,000	— 10.9

[1] November 30, Pennsylvania Grade, 310; Other Appalachian, 70; Lima, etc., 110; Illinois-Southwest Indiana, 280; North Louisiana-Arkansas, 495; West Texas-Southeast New Mexico, 975; East Texas, 1,040 Oklahoma-Kansas ,etc., 3,350 ;Gulf Coast, 1,205; Rocky Mountain, 515; California, 3,080.

Less Drilling in Forecast

By L. J. LOGAN,

PRESENT plans of oil companies and operators and the current outlook for the industry indicate that oil and gas well drilling in the United States will be somewhat less aggressive in 1939 than in 1938.

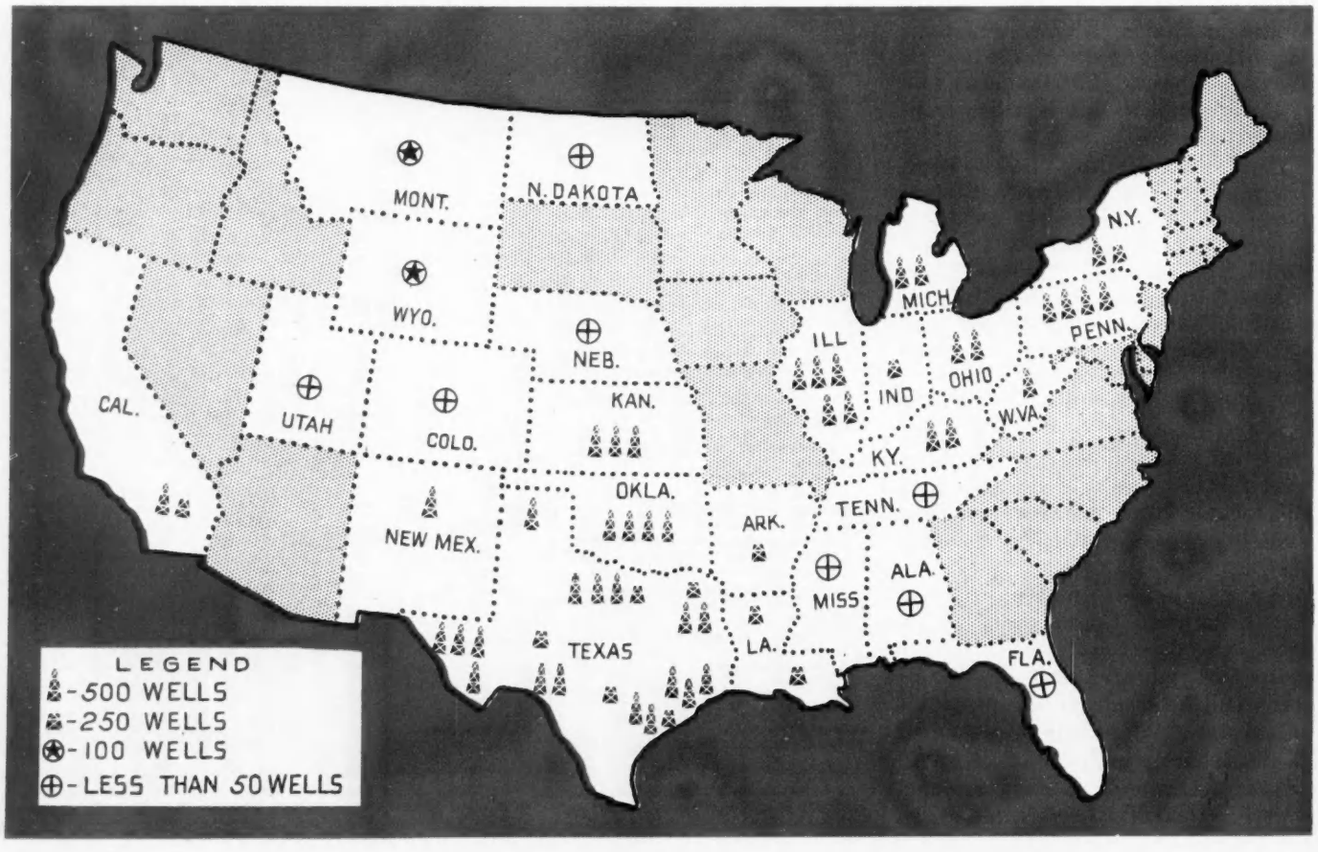
This publication's annual forecast of drilling indicates that approximately 25,965 wells will be drilled this year, or 5.7 percent less than last year, when 27,528 wells were completed in the United States.

This forecast is based on a survey in which the various district editors collaborated and in which the present plans of companies and operators were considered, along with the general circumstances surrounding the industry and the special circumstances in the various states, districts, and fields.

Although the United States as a whole is expected to show a 5.7 percent decrease in drilling in 1939, some states and districts apparently will be more active than in 1938.

Nevertheless, the areas where declines are anticipated include states that normally account for a large proportion of all United States drilling, whereas the areas of expected increases furnish a

Indicated Well Completions for 1939 Fewer Than New Wells of 1938



United States for 1939

Associate Editor

considerably smaller share of the country's well completions.

States of Likely Declines

Briefly summarized, the survey indicates that drilling will be curtailed sharply in California, moderately in Texas and New Mexico, and slightly in Oklahoma and Kansas. Thus declines are believed to be in store for five of the six leading oil producing states. Those five states in 1938 accounted for approximately 60 percent of all United States completions. In addition, declines are expected in a few other states, including Ohio and West Virginia.

Areas of Expected Gains

On the other hand, increased drilling is expected in Illinois, Indiana, Kentucky, New York, and Pennsylvania, indicating a gain in completions for the Eastern States in the aggregate. Likewise, more completions are indicated for Arkansas, Louisiana, the Rocky Mountain States, and the Southeastern or Eastern Gulf States.

Checks with Company Plans

Good evidence is available for support of this forecast in both its national and territorial aspects.

The indicated 5.7 percent decrease in United States completions is remarkably well confirmed by information on the drilling plans of a large number of companies and operators. Individual concerns and producers have considerably varying development programs for 1939, some expecting to drill more and some fewer wells than in 1938, and the indicated percentages of changes being materially different for different operators. But a tabulation of all the information that was obtained on company plans indicated that in the aggregate, the operators involved planned to drill around 6 percent fewer wells in 1939 than in 1938.

The expected 5.7 percent decline in drilling also appears plausible in the light of the various general factors that affect drilling.

Especially important as an influence on drilling is the price of crude oil. As indicated by two accompanying charts, the trend of annual well completions very closely conforms with the trend of crude prices. Drilling is perceptibly stimulated by favorable crude prices and depressed by unfavorable prices. In 1920, 1926, 1929, and 1937, for example, crude prices were relatively good, and drilling

The Oil Weekly's Forecast of Drilling in 1939 Indicates Slightly Less Activity Than in 1938

STATE OR DISTRICT	WELLS ACTUALLY DRILLED IN PAST FOUR YEARS				ESTIMATES OF 1939 DRILLING	
	1935	1936	1937	1938	Total Wells	Percent Change from 1938
Arkansas	123	90	140	224	245	+ 9
California	1,092	1,123	1,470	1,270	750	— 41
Colorado	11	19	19	11	15	+ 36
Eastern States	4,383	5,975	7,994	7,288	8,080	+ 11
Illinois	.....	4	408	2,032	2,650	+ 30
Indiana	.....	165	146	163	260	+ 59
Kentucky	.....	273	575	796	970	+ 22
New York	.....	760	1,253	692	720	+ 4
Ohio	.....	1,918	1,487	923	915	— 1
Pennsylvania	.....	2,256	3,154	2,003	2,060	+ 6
West Virginia	.....	599	971	679	505	— 26
Kansas	1,314	1,722	2,657	1,642	1,575	— 4
Louisiana	732	994	987	1,072	1,250	+ 17
North Louisiana	321	556	510	508	600	+ 18
South Louisiana	411	438	477	564	650	+ 15
Michigan	602	756	925	999	1,080	+ 8
Montana	171	193	200	79	110	+ 39
Nebraska	.....	1	.....	1	3	+200
New Mexico	302	564	674	534	470	— 12
North Dakota	.....	.....	.....	1	2	+100
Oklahoma	2,320	2,857	2,926	2,087	1,920	— 8
Southeastern States	20	12	17	24	70	+192
Alabama	.....	2	2	1	10	+900
Florida	.....	2	1	.....	10	.....
Mississippi	.....	8	14	21	40	+ 90
Tennessee	.....	.....	.....	2	10	+400
Texas	11,525	12,527	14,997	12,184	10,245	— 16
East Texas Field	4,124	2,627	2,466	1,806	950	— 47
Rest of East Texas	311	566	1,007	487	410	— 16
North Texas	2,136	2,179	2,254	2,398	1,750	— 27
South Texas	1,950	3,321	3,594	2,744	2,700	— 2
Corpus Christi Area	.....	.....	1,456	1,216	1,250	+ 3
Laredo Area	.....	.....	1,522	1,057	1,100	+ 4
San Antonio Area	.....	.....	616	471	350	— 26
Texas Gulf Coast	1,103	1,127	1,537	1,522	1,500	— 1
Texas Panhandle	670	665	838	571	550	— 4
West Texas	813	1,579	2,898	2,290	2,050	— 10
West Central Texas	418	463	403	366	335	— 8
Utah	1	.....	1	4	5	+ 25
Wyoming	73	102	105	108	135	+ 25
Other States	.....	.....	.....	.....	10	.....
United States	22,669	26,935	33,112	27,528	25,965	— 5.7

was extensive; while the unusually low crude prices of 1931 and 1933 were accompanied by sharply curtailed drilling. Similarly, crude prices declined in 1938, and so did drilling.

It is conjectural, of course, what the average price of crude will be for 1939, and consequently, no definite light is thrown by prospective prices on the outlook for drilling. But the average price now is only about $1.02 a barrel, in contrast with that of about $1.15 for 1938 as a whole, being down, therefore, around 12 percent. Although there is hope in the industry that crude prices will improve in 1939, it is quite likely that the average for the year will be lower than that of 1938.

Thus the forecast of a decline in drilling is supported by the indications of possible lower crude prices for the year.

If the indicated decrease in drilling should be relatively smaller than the price decline, however, it might be explained by the prospective increased general business activity, better demand for oil, and comparatively large crude oil production, factors which would tend to bolster drilling.

Business is materially better than a year ago, and it is estimated that demand for petroleum will be around 5 percent larger in 1939 than in 1938. Crude oil production consequently may show a similar increase, and the larger demand and larger production would tend to encourage wildcatting and field development.

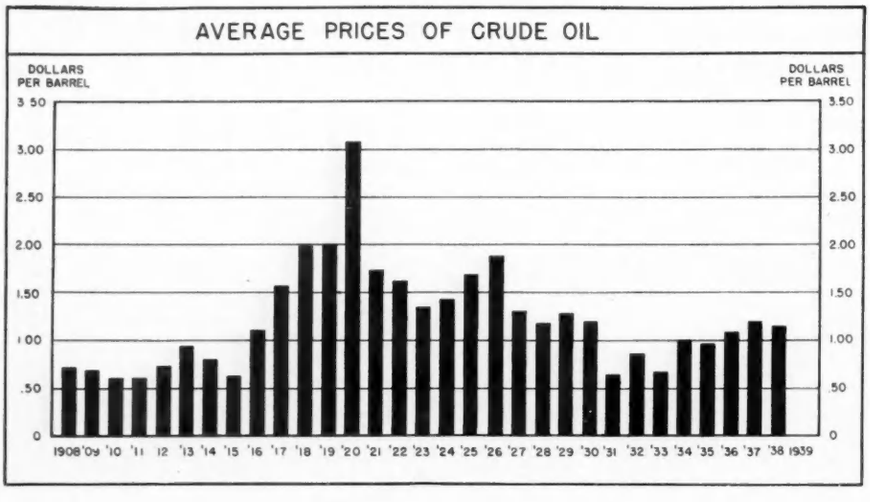
In so far as general business conditions are concerned, therefore, they may temper any decline in drilling.

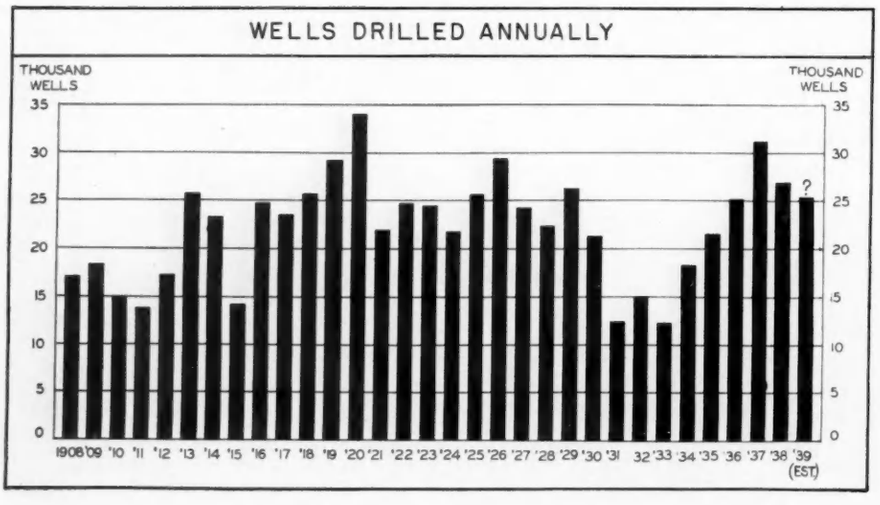
Another factor which may tend to hold down drilling is the situation regarding crude oil reserves.

For several years the industry has been finding more oil than the country has been using, another net addition to known reserves having been made in 1938. Consequently, the reserves of crude oil are now at new, record proportions. And although the industry must continuously find new fields to replace those that are being depleted, in meeting the heavy demand, the need for new reserves currently is not especially urgent. In so far as the crude reserves are concerned, therefore, a decline in drilling in 1939 appears logical.

Crude Oil Prices Largely Control Drilling

The two charts below indicate that crude oil prices have a direct and immediate effect on drilling. In the past 30 years, upward or downward fluctuations of prices nearly always have been accompanied by increases or decreases in drilling. The charts are based on Bureau of Mines figures, although estimates are embodied in the data for 1938.





Changes by States

The forecasts of drilling by states and districts, presented in an accompanying table, also can be supported by pertinent facts and information.

Presented in support of the state and district forecasts is the accompanying table that shows how present drilling activity compares with that a year ago. Rigs in operation are less numerous than a year ago in the United States as a whole and in most of the states and districts where fewer completions are expected this year. Conversely, more rigs are in use now than a year ago in Illinois, Kentucky, and some other areas where increased completions are foreseen.

Back of the predicted decrease in drilling in California is the difficulty that state is having in controlling production already developed. Some companies have indicated that they intend to curtail their California drilling around 50 percent, but others will make less drastic reductions. Late in the past year California producers entered upon a program of drastic, voluntary curtailment of crude oil production, and they are continuing the program this year. Consequently, there is a definite incentive for curtailment of drilling in the state.

Similarly, drilling has been excessive in Texas in recent years, and well allowables have decreased continuously. They are now down so low as to discourage investment in new wells. Increased petroleum demand and more attractive allowables, if not better prices, probably would be required for materially stimulating drilling in Texas fields.

Loss of markets to Illinois has been materially responsible for

sharp curtailment of drilling in Oklahoma and Kansas during the past year, and purchasers continue to shift from Oklahoma-Kansas fields to the flush Illinois fields for supplies. Consequently, demand for crude languishes in Oklahoma and Kansas, and relatively little incentive for drilling prevails.

In direct contrast with Oklahoma and Kansas, Illinois is a favored area for drilling, because the crude oil from its new fields is in ready demand. Development in the state was aggressive in 1938, but an increase in completions is in prospect for 1939.

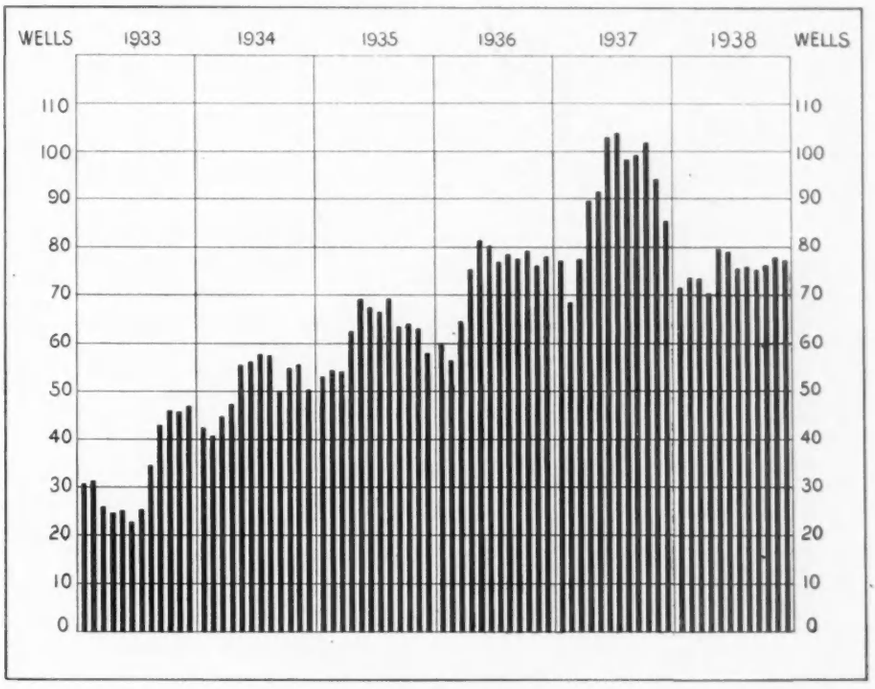
Success in finding new fields in Illinois has encouraged exploration in the adjoining states of Indiana and Kentucky, and those states are expected to furnish materially more completions this year than last year.

Overproduction has disturbed the crude oil market in Michigan, but success has rewarded exploration, and the state is advantageously located in relation to large refining centers. Consequently, a slight increase in Michigan drilling is in prospect.

Forecasts of relatively active drilling in Pennsylvania and New York are based on prospects of larger demand and better prices for Pennsylvania grade crude oil. Better business conditions are expected to stimulate industrial demand for lubricants, principal product made from Pennsylvania grade crude.

Drilling Shows Material Seasonal Fluctuations

This chart shows the average number of wells completed daily in the United States, by months, in the past six years.



Drilling Activity in the United States at Beginning of Year, 1937, 1938, and 1939

STATE OR DISTRICT	RIGS IN OPERATION: Drilling			Rigs Up			Shut Down			Total (Drilling, Rigs Up, Shut Down)			Percent Change 1938-39	PRELIMINARY OPERATIONS: Derricks			Locations			TOTAL OPERATIONS		
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939		1937	1938	1939	1937	1938	1939	1937	1938	1939
Arkansas	16	33	27	....	3	4	4	7	8	20	43	39	— 9	6	1	4	....	....	7	26	44	50
Arizona	....	....	3	....	....	....	....	....	1	....	....	4	....	....	....	1	....	....	1	....	....	6
California	248	249	187	64	72	62	49	39	55	361	360	304	— 15	....	....	20	16	77	35	377	437	359
Colorado	4	11	11	3	2	1	14	15	12	21	28	24	— 14	....	2	....	1	....	1	22	30	25
Eastern States	228	398	453	37	63	156	84	179	258	349	640	867	+ 35	15	51	96	20	28	120	384	719	1,083
Illinois	8	58	121	4	7	93	26	79	158	38	144	372	+158	....	32	50	3	14	65	41	190	487
New Fields	2	54	94	....	7	79	6	60	89	8	121	262	+116	....	28	36	....	12	51	8	161	349
Old Fields	6	4	27	4	....	14	20	19	69	30	23	110	+378	....	4	14	3	2	14	33	29	138
Indiana	18	27	22	1	....	7	7	9	7	26	36	36	....	2	1	6	2	2	7	30	39	49
Kentucky	9	13	59	1	3	8	3	8	17	13	24	84	+250	2	3	13	3	3	17	18	30	114
New York	11	19	22	1	2	4	6	16	7	18	37	33	— 11	1	1	3	1	....	6	20	38	42
Ohio	65	82	78	8	12	20	18	28	27	91	122	125	+ 2	5	8	4	2	2	1	98	132	130
Pennsylvania	15	89	99	4	19	15	4	17	27	23	125	141	+ 13	2	3	12	2	....	19	27	128	172
West Virginia	102	110	52	18	20	9	20	22	15	140	152	76	— 50	3	3	8	7	7	5	150	162	89
Kansas	340	331	128	89	41	19	46	70	21	475	442	168	— 62	....	....	9	54	29	18	529	471	195
Louisiana	145	184	178	20	24	8	17	31	14	182	239	200	— 16	8	11	13	36	42	59	226	292	272
North Louisiana	68	73	80	12	9	7	6	9	11	86	91	98	+ 8	5	3	7	12	6	9	103	100	114
South Louisiana	77	111	98	8	15	1	11	22	3	96	148	102	— 31	3	8	6	24	36	50	123	192	158
Michigan	161	183	98	34	26	26	....	....	35	195	209	159	— 24	....	....	25	50	25	41	245	234	225
Montana	27	22	14	2	1	4	14	18	24	43	41	42	+ 2	....	....	....	....	....	3	43	41	45
Nebraska	1	1	1	....	....	....	....	1	....	1	2	1	— 50	....	....	....	....	....	1	1	2	2
New Mexico	96	94	96	16	8	7	11	6	38	123	108	141	+ 30	....	....	5	2	13	12	125	121	158
Oklahoma	466	292	225	50	55	23	123	107	47	639	454	295	— 35	....	....	31	92	49	44	731	503	370
Southeastern States	8	6	4	....	....	3	9	19	12	17	25	19	— 24	....	1	3	2	2	3	19	28	25
Alabama	....	....	1	....	....	1	2	4	3	2	4	5	+ 25	....	....	....	....	1	1	2	5	6
Florida	1	2	3	....	....	1	1	2	1	2	4	5	+ 25	....	....	1	....	....	....	2	4	6
Mississippi	7	4	....	....	....	1	6	13	8	13	17	9	— 47	....	1	2	2	1	2	15	19	13
Texas	1,167	1,175	803	98	160	65	215	206	230	1,480	1,541	1,098	— 29	151	148	71	313	295	341	1,944	1,984	1,510
East Texas Field	62	71	28	9	10	5	24	24	6	95	105	39	— 63	30	22	6	15	21	7	140	148	52
Rest of East Texas	168	55	28	19	19	7	48	19	15	235	93	50	— 46	54	26	5	31	36	5	320	155	60
North Texas	141	162	89	16	17	4	19	23	52	176	202	145	— 28	10	24	9	36	44	39	222	270	193
South Texas	226	230	236	26	31	26	45	39	48	297	300	310	+ 3	11	19	21	88	105	99	396	424	430
Corpus Christi Area	139	124	132	11	22	11	22	20	12	172	166	155	— 7	8	10	14	52	52	64	232	228	233
Laredo Area	54	63	61	13	5	10	15	11	16	82	79	87	+ 10	1	2	4	25	22	24	108	103	115
San Antonio Area	33	43	43	2	4	5	8	8	20	43	55	68	+ 13	2	7	3	11	31	11	56	93	82
Texas Gulf Coast	121	157	118	11	23	8	11	12	2	143	192	128	— 33	27	32	11	38	29	97	208	253	236
Texas Panhandle	104	134	44	9	21	4	18	15	24	131	170	72	— 58	1	5	1	23	8	6	155	183	79
West Texas	298	323	225	5	38	9	36	55	48	339	416	282	— 32	16	19	18	69	44	78	424	479	378
West Central Texas	47	43	35	3	1	2	14	19	35	64	63	72	+ 14	2	1	....	13	8	10	79	72	82
Utah	4	....	1	....	....	....	....	....	....	4	....	1	....	....	....	....	....	....	....	4	....	1
Wyoming	30	36	32	3	4	2	22	19	38	55	59	72	+ 22	....	....	....	7	16	4	62	75	76
Total	2,941	3,015	2,261	416	459	380	608	717	793	3,965	4,191	3,434	— 18.1	180	214	278	593	576	690	4,738	4,981	4,402

Average Drilling Depth Continues to Increase

Further slight gain in average depth of new wells in U. S. is indicated for 1939, following setting of new record of 3144 feet per well by completions of 1938

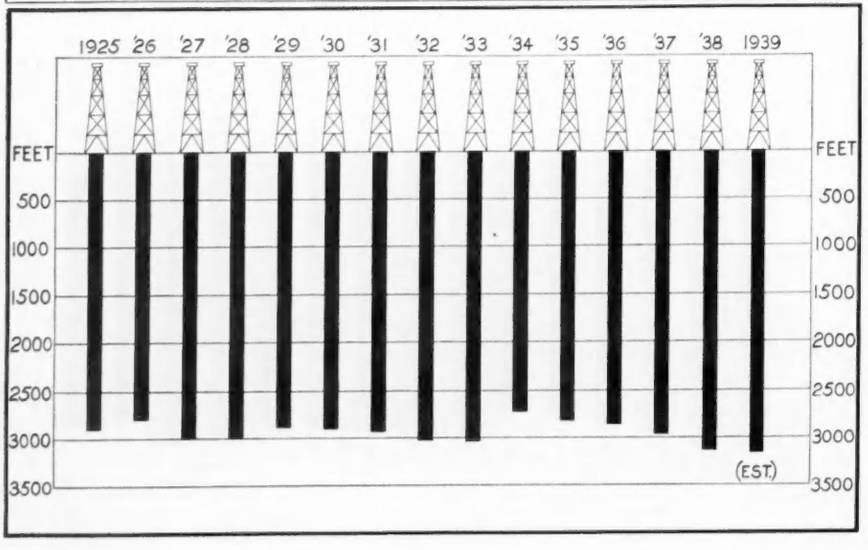
By L. J. LOGAN, Associate Editor

A FURTHER slight increase in the average drilling depth in the United States is in prospect in 1939, following the setting of a new record of 3144 feet per well in 1938, the 27,528 wells completed during the year having had depths aggregating 86,485,040 feet.

As shown in another article in this issue, a forecast has been made of the number of wells to be drilled in each state and district in 1939, and with those forecasts as a basis, probable footage to be drilled in 1939 has been estimated, with due consideration of the prevailing trends of drilling depths in the various areas. The expected 25,965 completions will have combined depths of 82,393,000 feet, according to the estimates, indicating a new record average drilling depth of 3173 feet per well in 1939.

That depth would be 29 feet greater than the 3144-foot average per well actually drilled in 1938, and the increase for 1939 would be smaller than the corresponding increases in 1938 and 1937 but about the same as that for 1936. The average drilling depth in the United States was 2829 feet in 1935, increased 32 feet in 1936, 113 feet in 1937, and 170 feet in 1938.

Average Drilling Depth of 1938 Sets Record and Further Increase in 1939 Probable



Depths Increasing Steadily

The trend toward greater drilling depths has been under way continuously for four years, or since 1934, when completion depths averaged only 2731 feet. In the four years, the average depth has been increased 413 feet, indicating an average annual increase of approximately 100 feet.

On the basis of that four year average, the 170-foot increase in the average drilling depth in 1938 was larger than normal, but the indicated increase of only 29 feet in 1939 would be smaller than normal.

Shallower Areas Active

The prospective flattening of the trend toward greater completion depths in 1939 is explained by the expectation of increased drilling in Illinois and some of the other states of the Middle West and East, where pay zones are comparatively shallow, and of decreased drilling in California, the Texas Gulf Coast, and some other areas of relatively deep fields, as well as in various other sections of the country.

It is true that completions were numerous in 1938 in Illinois, where the average completion depth was only 1873 feet. But the state is expected to have materially more completions in 1939. And increased drilling is predicted also for the adjoining states of Indiana and Kentucky, where completion depths in

1938 averaged only 1142 and 1230 feet, respectively.

Similarly, somewhat more completions in 1939 than in 1938 are expected in Pennsylvania and New York, where well depths average less than 1500 feet.

Wells Deep in 1938

The material increase in 1938 in the average drilling depth for the United States reflected active development of relatively deep fields in various states and districts and trends toward deeper levels in numerous areas.

In Arkansas the average depth increased from 4548 feet in 1937 to 6230 feet in 1938, with the development of several new, deep fields. California wells averaged 4850 feet in 1938, compared with only 4061 feet in 1937. In South Louisiana, deep fields were found and developed and the average depth increased from 5997 to 6240 feet. On the Texas Gulf Coast an increase from 5742 to 6148 feet occurred. The Corpus Christi area of South Texas showed a gain from 5218 to 5271 feet.

Those areas furnished not only greater completion depths in 1938 but also relatively large numbers of completions, having been among the more active districts of the country. Therefore, they materially affected the average drilling depth for the United States. They promoted an increase in the national average, despite the Illinois boom, as other areas of shallower drilling, such as the Appalachian states, were not especially active.

Furthermore, average depths of completions were greater in 1938 than in 1937 in most districts of the country, including not only the mentioned deep-drilling areas, but also Indiana, Kentucky, Pennsylvania, West Virginia, Kansas, North Louisiana, Montana, New Mexico, Wyoming, Mississippi, North Texas, the Laredo district of South Texas, the Texas Panhandle, West Texas, and West Central Texas.

Decrease of Completions in 1938 Lowers Footage Drilled, Despite Greater Average Depth

YEAR	Wells Completed	Footage Drilled	Average Depth per Well
1925	25,406	73,677,400	2900
1926	28,995	81,186,000	2800
1927	22,301	66,903,000	3000
1928	19,964	59,892,000	3000
1929	23,463	67,925,285	2895
1930	19,848	57,557,200	2900
1931	11,716	34,259,110	2924
1932	14,290	43,033,422	3011
1933	12,170	36,904,500	3032
1934	18,949	51,748,906	2731
1935	22,669	64,112,400	2829
1936	26,935	77,071,920	2861
1937	33,112	99,922,908	2974
1938	27,528	86,485,040	3144

Some States Decline

Areas that showed decreases in 1938 in average drilling depths included only Illinois, New York, Ohio, Michigan, Oklahoma, Colorado, Eastern Texas, and the San Antonio district of South Texas.

South Louisiana in 1938 retained its distinction as the world's foremost deep-drilling area, in showing the average completion depth of 6240 feet for 564 wells. But the Texas Gulf Coast became a formidable challenger for the distinction, in furnishing 1522 completions with an average depth of 6148 feet. Arkansas had an average depth of 6230 feet, but furnished only 224 completions. California, North Louisiana, and the Corpus Christi district of South Texas also were outstanding deep-drilling areas, as in earlier years.

Wells, Footage, and Depths Drilled in Past Four Years

(Determined from The Oil Weekly's records on depths of completed wells.)

STATE OR DISTRICT	WELLS COMPLETED				FOOTAGE DRILLED				AVERAGE DEPTH PER WELL			
	1935	1936	1937	1938	1935	1936	1937	1938	1935	1936	1937	1938
Arkansas	123	90	140	224	352,310	287,119	636,775	1,395,584	2864	3190	4548	6230
California	1,092	1,123	1,470	1,270	4,546,671	4,634,528	5,970,047	6,110,796	4164	4127	4061	4850
Eastern States	4,383	5,975	7,994	7,288	6,843,668	9,482,753	13,974,130	12,395,105	1561	1586	1645	1700
Illinois	.....	4	408	2,032	.....	7,348	822,463	3,806,260	....	1837	2016	1873
Indiana	.....	165	146	163	.....	143,525	141,496	186,168	....	870	969	1142
Kentucky	.....	273	575	796	.....	197,950	577,518	985,330	....	729	1004	1230
New York	.....	760	1,253	692	.....	1,112,000	1,882,091	943,134	....	1599	1502	1363
Ohio	.....	1,918	1,487	923	.....	3,715,980	2,778,422	1,648,632	....	1937	1868	1786
Pennsylvania	.....	2,256	3,154	2,003	.....	2,959,600	5,234,300	2,978,101	....	1312	1342	1486
West Virginia	.....	599	971	679	.....	1,346,350	2,537,840	1,847,480	....	2248	2614	2721
Kansas	1,314	1,722	2,657	1,642	4,044,907	5,442,549	8,327,976	5,299,000	3078	3161	3175	3227
Louisiana	732	994	987	1,072	3,219,665	4,844,021	4,957,590	5,679,637	4398	4873	5022	5298
North Louisiana	321	556	510	508	850,409	2,315,062	2,096,802	2,160,340	2649	4164	4111	4252
South Louisiana	411	438	477	564	2,369,256	2,528,959	2,860,788	3,519,297	5764	5774	5997	6240
Michigan	602	756	925	999	1,612,782	1,933,671	2,774,394	2,456,828	2679	2558	2999	2459
Oklahoma	2,320	2,857	2,926	2,087	6,679,371	8,968,906	8,731,295	6,179,799	2879	3139	2980	2961
Rocky Mountain States	558	879	999	738	1,696,103	2,937,703	3,379,226	2,564,982	3040	3342	3382	3599
Colorado	.....	19	19	11	.....	67,580	70,325	34,902	....	3557	3701	3173
Montana	.....	193	200	79	.....	466,280	419,032	174,165	....	2416	2095	2204
Nebraska	.....	1	.....	1	.....	4,040	.....	3,829	....	4040	....	3829
New Mexico	.....	564	674	534	.....	2,130,078	2,540,040	2,023,202	....	3777	3750	3770
North Dakota	.....	.....	.....	1	.....	.....	.....	10,281	....	....	....	10281
Utah	.....	.....	1	4	.....	.....	5,674	19,836	....	....	5674	4959
Wyoming	.....	102	105	108	.....	269,725	344,155	298,767	....	2644	3277	2761
Southeastern States	20	12	17	24	74,750	35,042	65,094	91,509	3737	2920	3829	3813
Alabama	.....	2	2	1	.....	7,470	13,632	5,214	....	3735	6816	5214
Florida	.....	2	1	.....	.....	3,590	510	.....	....	1795	510	....
Mississippi	.....	8	14	21	.....	23,982	50,952	82,305	....	2998	3639	3919
Tennessee	.....	.....	.....	2	.....	.....	.....	3,990	....	....	....	1950
Texas	11,525	12,527	14,997	12,184	35,042,173	38,505,628	51,106,381	44,311,800	3041	3074	3408	3637
Eastern Texas	4,435	3,193	3,473	2,293	16,154,874	11,993,420	13,663,647	8,765,095	3642	3756	3937	3822
East Texas Field	.....	.....	2,466	1,806	.....	.....	8,937,480	6,584,376	....	....	3624	3645
Rest of East Texas	.....	.....	1,007	487	.....	.....	4,726,167	2,180,719	....	....	4693	4478
North Texas	2,136	2,179	2,254	2,398	2,634,556	2,999,559	3,866,156	5,777,858	1233	1377	1756	2409
South Texas	1,950	3,321	3,594	2,744	6,114,705	10,639,909	12,857,959	10,218,307	....	....	3577	3723
Corpus Christi	.....	.....	1,456	1,216	.....	.....	7,597,442	6,410,099	....	....	5218	5271
Laredo	.....	.....	1,522	1,057	.....	.....	3,727,888	2,870,312	....	....	2462	2715
San Antonio	.....	.....	616	471	.....	.....	1,532,629	937,896	....	....	2488	1991
Texas Gulf Coast	1,103	1,127	1,537	1,522	5,243,960	5,906,387	8,825,709	9,358,298	4754	5241	5742	6148
Texas Panhandle	670	665	838	571	1,974,259	1,986,952	2,574,211	1,742,625	2947	2988	3072	3052
West Texas	813	1,579	2,898	2,290	2,298,274	4,251,034	8,645,507	7,765,953	2827	2692	2983	3391
West Central Texas	418	463	403	366	621,545	728,367	673,192	683,664	1487	1573	1670	1869
United States	22,669	26,935	33,112	27,528	64,112,400	77,071,920	99,922,908	86,485,040	2829	2861	2974	3144

Volume of Deep Drilling Surging Upward Rapidly

Drilling of 145 tests below 10,000 feet in 1938 as compared with but 41 in preceding year, indication that 1939 may see 200 of these deep holes finished.

By WARREN L. BAKER, Editor

IT is very probable that 1939 will witness the drilling of as many tests exceeding 10,000 feet in depth as have been drilled in all preceding years. This means that somewhere near 200 of these deep holes are expected to be drilled during the 12-month period, which is in excess of a completion every other day.

Off-hand, this may appear an incautious statement, but a study of the 1938 deep drilling record brings to light several prominent factors that form an excellent basis for the prediction. Among the influencing circumstances are the great growth in depth records for both drilling and production during the year, as well as the rapid expansion in number of 10,000-foot producing fields, and the exceptionally large increase in number of tests carried to these deep horizons.

Number of Tests Completed Below 10,000 Feet Has Increased Yearly

DEPTH ZONES	1931	1932	1934	1935	1936	1937	1938	Total
Number 15,000-foot Tests	..	..	..	..	..	..	1	1
Number 14,000-foot Tests	..	..	..	..	..	..	1	1
Number 13,000-foot Tests	..	..	..	..	..	..	8	8
Number 12,000 foot Tests	..	..	..	1	1	5	4	11
Number 11,000-foot Tests	..	..	3	1	1	5	52	62
Number 10,000-foot Tests	3	1	1	5	8	31	79	128
Total for All Depths	3	1	4	7	10	41	145	211

Statistics Show Remarkable Trend

The trend of deep drilling activity in recent years is the best indicator of future possibilities, and is shown most accurately by the statistical record. An accompanying table clearly pictures its growth by years and depths.

Seventy-two years of oil industry history passed before a single test achieved a penetration of 10,000 feet. Yet, in the scant 7½ years since that occasion (in May, 1931), a total of 211 tests have been completed below that mark. Moreover, of these 211 tests completed throughout the world, 145 were during 1938 and 41 were during 1937. The other 5½ years of the 10,000-foot era saw only 28 such tests completed.

The foregoing figures show how rapidly the drilling of 10,000-foot tests has expanded during 1937 and 1938, and indicate that it is not amiss to suggest 200 holes may be carried below the level during 1939. For this would require the drilling of only 55 more deep tests than were completed in 1938.

New Deep Producing Records Established in 1938 and Number 10,000-Foot Fields More Than Doubled

FIELD AND COUNTY	Average Depth	Year Found*	Remarks
Louisiana Gulf Coast:			
West Dulac, Terrebonne Parish	13,265	1938	World's deepest production.
Bateman Lake, St. Mary Parish	10,905	1937	.....
Horseshoe Bayou, St. Mary Parish	10,900	1937	.....
Lake Barre, Terrebonne Parish	10,520	1938	.....
Lirette, Terrebonne Parish	10,500	1937	.....
Lake Long, Lafourche Parish	10,400	1937	.....
South Houma, Terrebonne Parish	10,310	1938	.....
Lafitte, Jefferson Parish	10,265	1937	World's first 10,000-foot commercial production.
Raceland, Lafourche Parish	10,200	1938	.....
Jeanerette, St. Mary Parish	10,200	1938	.....
California:			
Wasco, Kern County	13,175	1938	Second deepest production, and first 13,000-foot production.
Greeley, Kern County	11,500	1938	Fourth deepest production.
Rio Bravo, Kern County	11,300	1937	Was deepest production at end of 1937.
Ventura Avenue, Ventura County	10,500	1937	Second 10,000-foot production in world.
Long Beach, Los Angeles County	10,150	1938	.....
Texas Gulf Coast:			
Old Ocean, Brazoria County	10,670	1937	Deepest production in Texas.
Wilson's Creek, Matagorda County	10,058	1938	.....
Outside United States:			
Kinsuifield, Formosa, Japan	11,550	1938	Deepest outside of United States.
Turner Valley, Canada	10,024	1938	Second deepest outside of United States

* Year deep horizon found productive.

Discoveries An Incentive Also

In addition to the expansion of deep drilling in volume, there are other factors that tend to prophesy many such operations during this year.

Outstanding in this connection

Drilling and Producing Depth Record Holding Wells

	Feet
DEEPEST TEST: Continental Oil Co.'s KCL A-2, Wasco Field, Kern County California	15,004
SECOND DEEPEST TEST: Superior Oil Co.'s Helbling 1, Rio Bravo field, Kern County, California	14,020
THIRD DEEPEST TEST: Union Producing Co.'s Brown 1, Agua Dulce field, South Texas	13,728
DEEPEST TEST OUTSIDE UNITED STATES: Holstein 14, Germany	12,726
DEEPEST PRODUCING WELL: Fohs Oil Co.'s Buckley Bourg 1, West Dulac field Louisiana Gulf Coast	13,266
SECOND DEEPEST PRODUCING WELL: Continental Oil Co.'s KCL A-2, Wasco field, Kern County, California	13,175
DEEPEST PRODUCING WELL OUTSIDE UNITED STATES: Nippon Oil Co.'s Kinsui 32, Kinsui field, Formosa, Japan	11,550
SECOND DEEPEST PRODUCING WELL OUTSIDE UNITED STATES: Okalta Oils, Ltd.'s No. 6, Turner Valley field, Canada	10,024

is the encouragement offered by the success achieved in locating producing fields at these horizons in the past two years. The first commercial production below 10,000 feet was not discovered until January, 1937, when a well was completed in the Lafitte field of Jefferson Parish, Louisiana Gulf Coast. Today there are 19 fields producing from below 10,000 feet, and of importance is that 11 of these were proven productive during 1938.

These newly-discovered fields call for additional drilling of deep tests in most instances, and now that it has been proved oil is to be found in paying quantities below 10,000 feet, it is natural to assume that many operations unproductive at shallower horizons will not be abandoned until it is seen if production can be located at deeper levels.

Depth Trend Is Deeper Today

For years the trends have been steadily toward greater depths and 1938 is one of the outstanding periods in this respect. This development is of considerable significance.

The last 12 months saw the drilling of the first tests to 13,000, 14,000 and 15,000 feet, and witnessed the first 13,000-foot production.

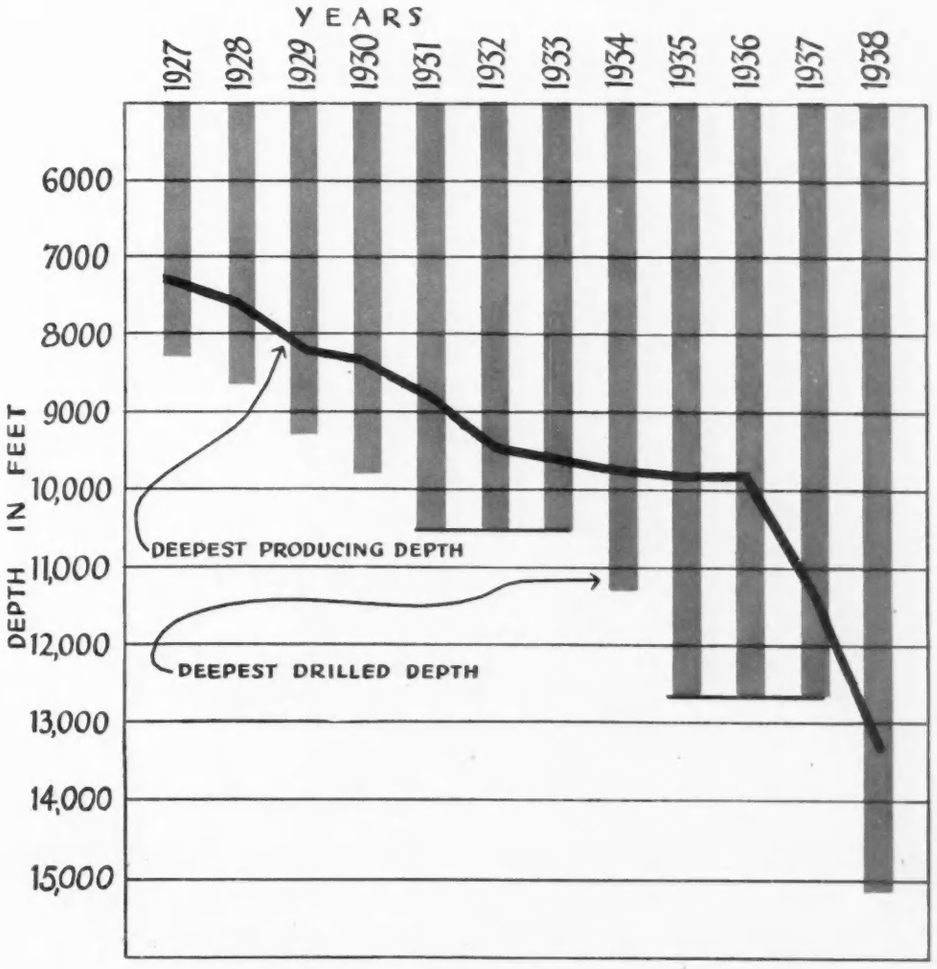
The past 12 years have seen the deep drilling record nearly doubled, having increased from slightly below 8000 feet to 15,004 feet. The growth in depths penetrated means that wherever producing formations are favorable for deep production, which is a large part of the United States and the world, it is possible to test 7000 more feet today than in 1927.

What this means in the way of discovering additional petroleum reserves is attested by the curve of the deepest producing wells, which have followed a line closely parallel to the longest holes drilled. In 1927, the deepest producing well was approximately 7500 feet, whereas today it is 13,265 feet, or over 5750 feet deeper.

The increase in drilling and producing depths during the past 12 years forms an interesting study and is presented in an accompanying graph.

One of the accompanying tables also shows how the drilling of more tests to deeper levels follows the establishment of new depth records.

There have been 128 tests that have stopped drilling between 10,000 and 11,000 feet, of which 79



Both drilling and producing depth records have increased steadily during the past 12 years, as shown on the accompanying graph.

Drilling Depth Records for Various Countries and States

STATE	Depth	Year Made
United States:		
California	15,004	1938
Texas	13,728	1938
South Texas	13,728	1938
East Texas	11,303	1938
Gulf Coast	11,612	1937
West Texas	12,786	1935
Louisiana	13,409	1938
North Louisiana	11,486	1938
Gulf Coast	13,409	1938
Oklahoma	11,415	1938
North Dakota	10,281	1938
Outside United States:		
Germany	12,726	1938
Japan	11,550	1938
Roumania	11,092	1934
Mexico	10,585	1931
Canada	10,209	1938
Iran	10,026	1936

were during 1938 and 31 were in 1937.

It was not until 1934 that the first test was carried to 11,000 feet, but penetration to this level became common during the past year when 52 holes were completed in the 1000 feet lying above the 12,000-foot horizon.

The first 12,000-foot test was a 12,786-foot hole in West Texas in 1935. Today, 11 tests have been completed between 12,000 and 13,000 feet, of which 9 were during the past two years.

Although the first test to reach 13,000 feet was only during 1938, a total of 8 wells have been completed at that depth.

To date, there has been one 14,020-foot test. One test has reached 15,004 feet.

In view of the trend toward ever increasing depths, it is to be expected that deeper holes are to come and that they will find new producing levels.

United States Leads

Most of the 10,000-foot or deeper holes have occurred in the United States. Likewise, this nation leads in deep producing fields. This course of events may be expected to continue for a good many years.

The United States has had 203 of the deep tests, compared with 8 outside its boundaries. Seventeen of the 19 producing fields are within its borders.

Mexico and Germany have furnished 2 of the deep tests each, while Roumania, Iran, Canada and Japan have completed 1 apiece.

The Kinsui field in Formosa, Japan, has the deepest production outside of the United States, and it cannot be classified as commercial. A well completed during 1938 is making 20 barrels daily from 11,550 feet. The other deep producing field outside of the United States lies a very short distance away, being in the Turner Valley field of Canada.

Whereas the deepest depth drilled in the United States is 15,004 feet, the greatest penetration in other countries is the 12,726 feet reached by a German test during the past year.

Louisiana Coast Leading Sector

Within the United States, the Gulf Coast section is the leading center of deep drilling by a wide margin. Considerably more than half of the 10,000-foot holes drilled in the nation have been in the Gulf Coast, there being 122 such tests, of which 89 have been in the coastal section of Louisiana and 33 in the Texas part.

The entire state of Louisiana has 95 of the deep tests to its credit, while Texas has 42.

California is the second ranking state, having 60 deep tests.

These three states accounted for all but two of the 142 deep holes made during 1938 in the United States. Louisiana had 65 of the 142, California, 49, and Texas, 26.

It is to be expected that these three areas will continue to dominate the deep-drilling picture, but not entirely. Oklahoma and even North Dakota reported 10,000-foot tests completed in 1938.

The present ability to drill to 10,000, 11,000, 12,000 and 13,000 feet with such regularity, as has been demonstrated, has been gained only through years of experience, study, and determination on the part of oil company men and equipment men. So successful have they been that the drilling of 13,000-foot holes attracts no more attention now than did 7000 and 8000 feet a very few years ago.

Literally, today's deepest tests are likely to be just an "also ran" tomorrow, and each year will see the drilling of a larger number of holes that exceed 10,000 feet. The practicability of such operations, from both an economic and mechanical standpoint, was proved in 1938, which prompts us to repeat that 200 of these deep tests are likely during 1939.

Louisiana Is Site of Nearly Half of 10,000-Foot Tests That Have Been Drilled

UNITED STATES

STATE	Depth	1931	1932	1934	1935	1936	1937	1938	Total
California	10,000	1	1	0	1	1	3	12	19
	11,000	..	..	1	0	1	1	30	33
	12,000	..	..	..	..	..	1	1	2
	13,000	..	..	..	..	..	..	4	4
	14,000	..	..	..	..	..	..	1	1
	15,000	..	..	..	..	..	..	1	1
Total by Years	.....	**1**	**1**	**1**	**1**	**2**	**5**	**49**	**60**
Louisiana	10,000	..	..	..	4	2	17	45	68
	11,000	..	..	..	..	..	2	15	17
	12,000	..	..	..	..	1	4	2	7
	13,000	..	..	..	..	..	..	3	3
Total by Years	.....	..	..	..	**4**	**3**	**23**	**65**	**95**
Texas	10,000	..	..	1	0	2	10	20	32
	11,000	..	..	..	1	0	1	5	7
	12,000	..	..	..	1	0	0	0	1
	13,000	..	..	..	..	..	..	1	1
Total by Years	.....	..	..	**1**	**2**	**2**	**11**	**26**	**42**
Oklahoma	10,000	1	0	0	0	1	1	0	3
	11,000	..	..	1	..	..	..	1	2
Total by Years	.....	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**5**
North Dakota	10,000	..	..	..	..	..	..	1	1
TOTAL UNITED STATES	.....	**2**	**1**	**3**	**7**	**8**	**40**	**142**	**203**

OUTSIDE OF UNITED STATES

COUNTRY	Depth	1931	1932	1934	1935	1936	1937	1938	Total
Mexico	10,000	1	0	0	0	1	0	0	2
Roumania	11,000	..	..	1	..	..	..	..	1
Iran	10,000	..	..	..	..	1	..	..	1
Canada	10,000	..	..	..	..	..	..	1	1
Japan	11,000	..	..	..	..	..	0	1	1
Germany	12,000	..	..	..	..	..	1	1	2
TOTAL OUTSIDE OF UNITED STATES	.....	**1**	**0**	**1**	**0**	**2**	**1**	**3**	**8**

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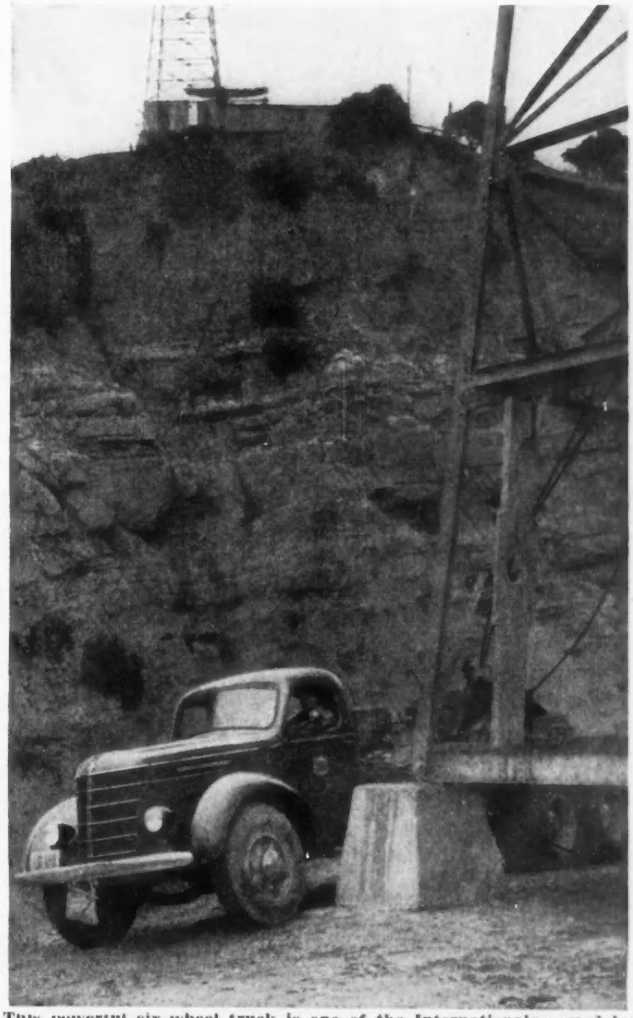

This powerful six-wheel truck is one of the Internationals owned by a major company in California. It is used in the Ventura district.

INTERNATIONAL TRUCKS

Oil Developments Outside United States Depend On War Situations

Work in South America and other parts where dictators do not control expected to continue progress as in 1938

By WM. V. GROSS, Foreign Editor

ANY attempt to predict the relative intensity of exploration and exploitation activity in any foreign country for 1939, as compared with 1938, must give consideration to the question: Is this particular country likely to become involved in the war threatening Europe or in the ones going on?

If there is no war during 1939, it seems safe to predict that countries geographically removed from the hub of European turmoil may be expected to react normally to the finding of a new field or to drilling requirements occasioned by world market conditions.

The Brighter Side

But there are bright spots as well as war clouds in the year's picture. Take Colombia, for example. A level-headed government attitude toward private enterprise has drawn several of the ranking companies of the world into a competitive lease and exploratory campaign that is perhaps more intense than any other in the western hemisphere, excluding the United States, which, by the way, is not considered in this article. On the basis alone of wells completed and waiting for a pipe line outlet, Colombia may be expected to double her production rate before the year is out, provided rains do not prevent finishing the Barco line before the end of the year. Not only this, but some of the wildcats remote from production have found encouraging showings. Some of the others drilling have been retarded by mechanical difficulties, but they are being drilled by organizations financially equipped to take such things in their stride, and if Colombia doesn't contribute to the list of new fields during 1939, one may say that it afforded one instance of where the law of averages failed to work. Without a new field, Colombia will probably complete 200 wells this year, 150 of them on the De Mares concession, 50 on the Barco, to say nothing of the several wildcats that will be drilled.

Another bright spot is Eastern Venezuela. Standard Oil Company of Venezuela found a new field late in 1938 at Jusepin. Development is just really getting well under way at Temblador and Pedernales, two other relatively new fields. Venezuelan Gulf Oil Company's Oficina field, a new development for Eastern Venezuela, will take its place among substantial Venezuelan producers as soon as a 100-mile line from the field to Guanta on Caribbean tidewater can be completed. The year 1938 closed with more active wildcats in Eastern Venezuela than at any other time and with several geophysical parties busy.

Western Venezuela looks forward to development of one brand new field. Bachaquero, on the eastern shore of Lake Maracaibo. It was only put on production in November. Some geologists believe it may eventually connect up with Mene Grande, to the south.

More than 60 rigs will be kept busy in Venezuela during 1939, and these, based on prior performance, should account for slightly more than 40 completions per month. An estimate of 500 completions for Venezuela for 1939 would be conservative.

Labor in Trinidad

The extent of Trinidad's drilling activity in 1939 hinges upon the outcome of the current sessions of the labor tribunal, recently reported as deadlocked. If things are settled in a manner satisfactory to the companies, there is reason why 1939 should be a better year for Trinidad than 1938. Discovery of production along the Point Ligoure - Coora fault, one that stretches all the way across the widest part of the island, leads some operators to the belief that the drilling may have uncovered another Fyzabad, Trinidad's greatest oil field. Follow-up drilling on these strikes is prominent in the 1939 program—and exclusive of results of that program, Trinidad probably will show an increase in production in 1939—barring labor difficulties. Completions should run in excess of 300, footage in excess of 1,000,000.

To touch on other South American countries briefly, Argentina will, of course, come in for its share of the activities, though government policies there are gradually sounding the death knell of private enterprise. Production there has been on the upgrade, the desire of the government being to become completely self-sufficient in the matter of petroleum supplies. Yacimientos Petroliferos has 80 rigs and 25 core-drilling outfits busy, and with three new fields listed in 1938, one in Mendoza and two in Salta, there is a possibility that the 17,000,000 barrels (estimated) produced in 1938 will be exceeded in 1939.

Bolivia and Brazil have entered into a treaty providing for joint contribution to a fund to be used to develop Bolivia's potential crude reserves, though some of the drilling will be done in Brazil. As to the latter nation, the main question now being considered is whether to do the drilling themselves or to contract with American concerns to do it. Bolivia, on the other hand,

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and in addition to its exploratory drilling, must do the drilling necessary to sustain production on properties taken from Standard Oil Company of Bolivia.

Ecuador still remains in the class of nations producing less than 3,000,000 annually and does not immediately promise to become more important in international oil.

Two private companies and the government continue separate exploratory efforts in Peru, though no important discoveries have been reported for 1938. Down in Eastern Peru, Blue Goose Oil Company is said to have logged a small showing of oil in a wildcat near the confluence of the Ucayali and Pachitea rivers, near the Brazilian frontier. Peru's production, steadily declining since 1936, probably will not be found to have exceeded 17,000,000 barrels in 1938 when the final figures are in. The program of about five wells per month for 1939 is not calculated to change the downward trend.

With talk to the effect that other member nations of the Pan American Peace Conference are going to watch the handling of the Mexican expropriation muddle to see whether the United States of America should continue to merit their respect, the outlook for some sort of a settlement of the dilemma in Mexico is a bit brighter. It has been before, but subsequent actions, or lack of them, disclosed that the outlook was viewed through tinted glasses so that it did not present an accurate picture of things as they were. But if the companies do get back into Mexico to operate the oil business, it is certain that considerable reconditioning will have to be done. The amount of new drilling to be contemplated under such an arrangement would depend upon the conditions under which those companies returned to Mexico.

Canada Will Be Busy

All branches of the industry in Canada will be busy in 1939. Current authoritative opinion is that considerably more drilling should be done in Turner Valley, leading field of the dominion. It received major extensions in 1938 which opened up thousands of acres for development. Most of it will be deep drilling, but some of the likely looking wildcats indicate all Canadian oil completions outside of Turner Valley in 1939 will not fall in the 7500-foot class. Since Turner Valley has grown like it has, Canada has become distinctly wildcat conscious, and late developments have accented that characteristic rather than softened it.

The Near East, including Egypt, affords another interesting part of the world of oil to speculate on.

Albania will continue systemmatic development of concessions in 1939, particularly because of the arrangement whereby Italy gets the lion's share of production from those concessions and because Italy wants crude reserves today more than ever. The little country probably will complete in excess of 100 wells this year, most of them shallow. Wildcatting will have to be continued, or not only concessions but cash guarantees as well will be forfeited.

Development of 35-gravity oil in Saudi Arabia during the year by California Arabian Standard Oil Company calls for a 1939 program to develop that 4700-foot pay. In addition to other contemplated drilling, plans to deepen 10 shallow holes have already been announced.

A 2000-barrel well in Kuwait and assurance of production in another wildcat means Kuwait Oil Company will do additional drilling there this year. Discovery of a fourth pay on Bahrein Island at around 4500 feet has caused Bahrein Petroleum Company to assign three rigs for its development. Two others will be kept busy on the regular pay.

The competitive nature of concession holdings in Egypt indicates considerable exploratory drilling started in 1938 will continue in 1939. The year just closed afforded Egypt one new field, Ras Gharib, an incentive for additional wildcatting. Some of the world's leading companies are participating in the play and Egypt is potentially important as a drilling center. It may become actually so before the year is over.

Iran and Iraq

New drilling in Iran in 1939 will be concentrated mostly in Haft-Kel field and a new structure northwest thereof, where production has been proven. Drilling at Masjid-i-Sulieman has been finished.

British Oil Development will continue drilling on Quaiyarah structure in northern Iraq during 1939. About 65 wells have shown for production, but a pipe line outlet for the field is lacking. If the shortest route from the field to Iraq Pipe Line Company's line to Mediterranean tidewater is selected, the new line, which probably will be built in 1939, will be 45 miles long. If, as has been rumored, it is decided to parallel the old line, then another major pipe line project is in the offing. The combined length of the two branches of Iraq Pipe Line Company's old line is about 1500 miles.

Europe

Going to continental Europe next, Roumania will continue to be the most active spot in 1939—barring war, a qualification which must be put on any forecast affecting Europe or any part of it. And though Roumania will be the most active spot in Europe from a drilling and production standpoint, it may continue to go down the ladder as it has done for several years. Although King Carol has manifested a desire to build up a new mining law which would induce and protect foreign capital needed to check his country's fall in the oil industry ranks, nothing practicable has been worked out. Roumania's estimated production of 43,000,000 barrels for 1938 is a decline of nearly one-fifth from the 54,142,600 barrels produced in 1937. Deeper flank drilling is in vogue there, due to 1937 developments primarily.

After Roumania comes Germany as continental Europe's second most important country so far as drilling is concerned. As a result of widespread geological and geophysical work, a number of structures were found there in 1938 and, as has been true there for several years, the government will help subsidize the drilling of those structures, because lack of domestic production is a critical flaw in the German military program. Because of government censorship of the press, definite information on those discoveries has not been made available.

Routine development in Poland always calls for a certain amount of drilling, but the opinion is rather general that Poland's day of important production has passed. Recent discovery of two pools of minor importance is not expected to halt the decline in production. But the trend there is toward deeper drilling, and it may be that areas which have been prospected with shallow holes only will afford new life to a dying industry. Completions in Poland in 1939 probably will run about 360.

Russia will use lots of drilling and pumping equipment in 1939,

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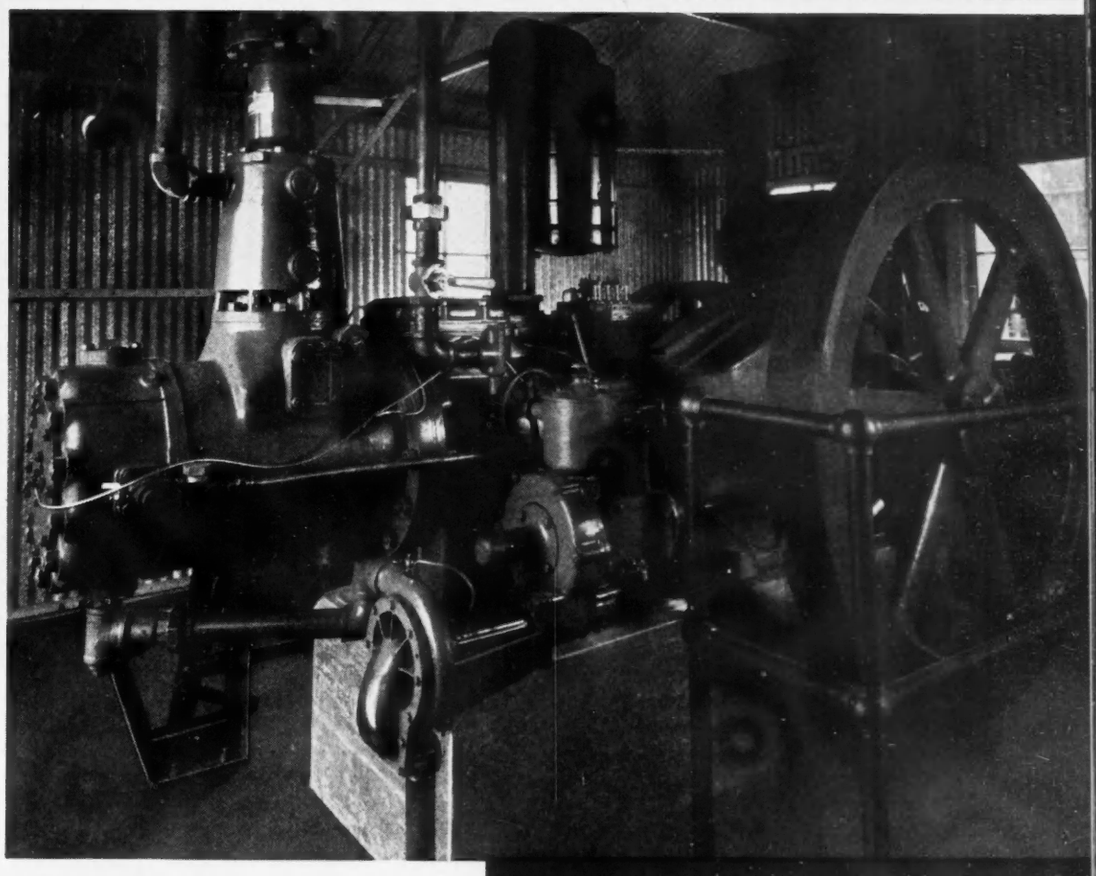

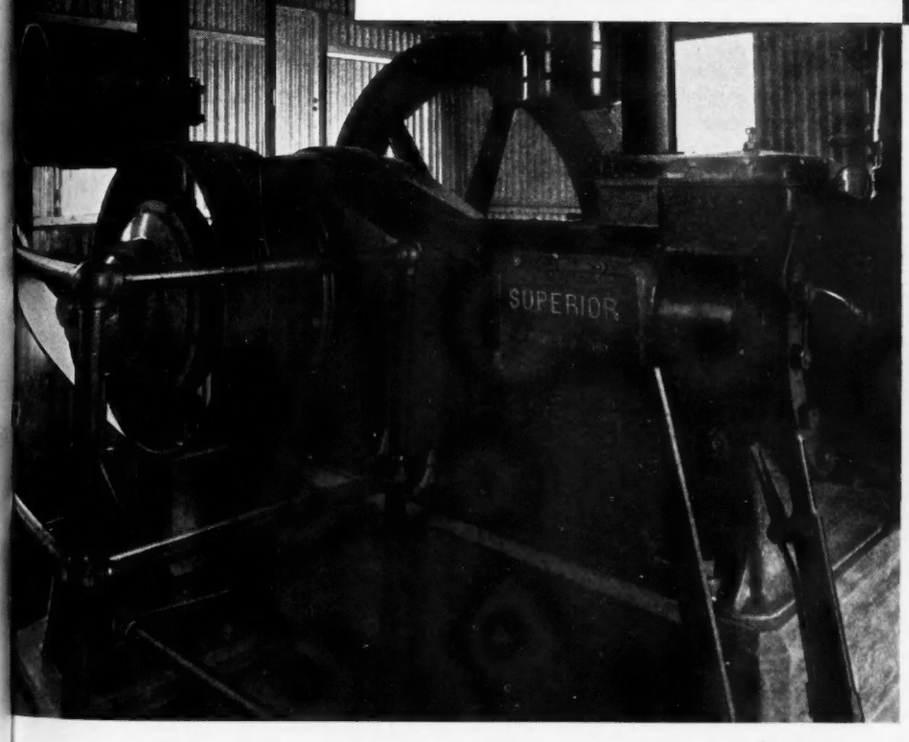

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because the orders of the powers that be in that country call for it. Although production was up slightly in 1938, it did not meet the quota set by the government. Neither did it equal the extraordinary gain in domestic consumption. Maintaining an annual production of 215,000,000 barrels calls for many new wells. In addition, the Russians probably will attempt to recondition fully 2000 wells in 1939.

There is no mistaking that Russia's reserves of petroleum are very great—some say much greater than those of the United States. The rulers there have shown signs of realizing that lack of certain types of equipment, notably light portable rigs, and of trained personnel are among the reasons for delay in developing those reserves.

India

India's outlook for 1939 depends on the success of the current development of Dhulian field, which has been labelled as having greater possibilities than Khaur. The play is for a 7500-foot sand. Recent increases in production there from the new development have put the Punjab on the production map in a substantial way. Deeper drilling in Burma is also showing a few encouraging results.

East Indies will afford lively drilling spots for years to come. It is true that production in some of the older fields, such as Tarakan and Samarinda of Borneo, as well as those of North Sumatra, has declined for some time, but South Sumatra, Java and Ceram have had phenomenal increases in the past few years.

There are no small companies among the producers in the East Indies. Many of the exploratory concessions do not expire until after **1970** and these cover millions of acres. Preliminary geology, corehole drilling and seismograph work are in evidence on a number of them.

New Guinea probably will see considerably more drilling in 1939 than it did in 1938 in the process of narrowing down several structures found during 1937 and 1938. Three strings of tools were kept busy there in 1938 doing exploratory drilling on concessions of a Dutch-American combine, and it is understood oil has been found. This combine budgeted £8,000,000 for exploratory work in New Guinea in 1938.

This brings us down to a discussion of what might be termed miscellaneous countries, so far as their present ratings as producers are concerned. Japan probably should head the list, due to prominence in headlines today. This country early in 1938 earmarked 20,000,000 yen to be spent for wildcatting in 1938, 1939 and 1940. The 1938 program called for prospecting 164 localities, most of them regarded as shallow prospects. But during the year Japan got a taste of deep drilling, completing a distillate well below 11,000 feet. The sand uncovered will be developed during 1939 and a deeper one will be sought in the same field, Kinsui. Shallow prospecting likewise will continue. Japan's activities in North Saghalien are unpredictable, due to the fact that Russia has been hampering development work there.

Taking the other nations, colonies or territories of the miscellaneous list in alphabetical order, one finds Australia with continued drilling assured by government appropriations, both state and federal, for the express purpose of subsidizing exploratory work. But due to the fact that all drilling in Australia is strictly wildcat, and to the limited amount of modern equipment available, it is not likely the commonwealth will complete more than 10 wells this year.

Austria has only three producing oil fields, all small in relation to the American conception of oil fields, and it is not likely that more than 36 completions will be recorded there this year, unless Hitler's subsidizing is extended to the Austrians. This suggestion is a distinct possibility, if not already an actuality.

Cold Bay and Chinitna Bay wildcat efforts in Alaska are expected to continue in 1939. The former is a joint project of Standard Oil Company of California, Tide Water Associated Oil Company and Union Oil Company of California; the latter is a project of Iniskin Drilling Company of Los Angeles.

Cuba will continue shallow drilling during the year at Motembo Basin and Bacuranao. In addition a major American company is core drilling about 15 miles out of Havana around a prospect said to hold some promise.

Czechoslovakia's drilling never has amounted to much, and with the political situation there as it is, nothing in the way of important exploratory work is expected for 1939.

Denmark may get a taste of exploratory drilling before the 12 months are over. An American company obtained a concession late in 1938 giving it the right to explore for oil in all of Denmark. Whether geological work has gone far enough to allow selection of a drill site early in 1939 is not known, but due to Denmark's proximity to the Hanoverian Basin of Germany, it seems likely the country will get several tests before the concession is relinquished.

Announcements are that the exploratory campaign in England will continue throughout 1939. Semi-commercial production was found near Edinburgh, Scotland, in 1938. The island might see six completions during the year — certainly not as many as a dozen.

If the geological and geophysical work being carried out by Shell de Guatemalteca warrants such, Guatemala will get a test for oil this year. The company has large concessions, primarily in the Department of Izabal.

As to Hungary, a recently organized company must decide by early 1939 whether it will continue drilling in the new Szantadiordan field, discovered by European Gas & Electric Company, or shift activities to other parts of the country. In either event, completions there are not expected to be more than one a month.

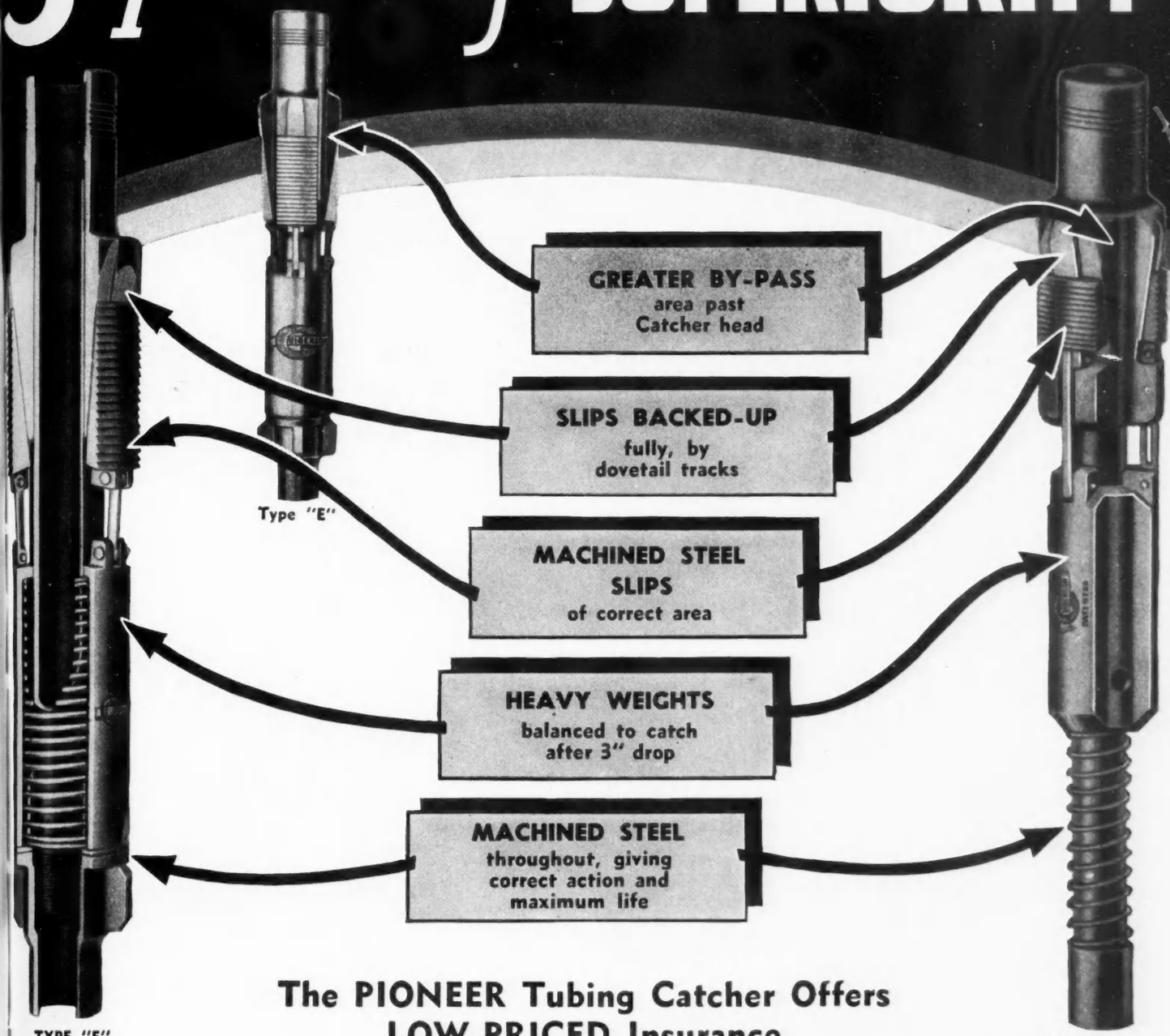
Italy has not completely dispaired of finding oil within that country, and a small scale wildcatting campaign continues. Results in her colonies have not been encouraging.

From a drilling standpoint, France's Pechelbronn field is about done; it is now regarded as primarily a mining proposition. But France will continue to drop some money on wildcatting in Morocco during 1939, although some officials high in the French oil business regard it as more or less of a futile gesture from an economic standpoint.

New Zealand right now is getting the first serious wildcatting it has ever had. Drilling started late in 1938 in the Poverty Bay district of the North Island, near Gisborne. So far the British colony has a small amount of shallow production at Taranaki, where deeper testing is being carried out.

Turkey's wildcatting will continue. Test drilling there during 1938 justified deeper drilling in the 1939 program, which probably will not include more than 10 wells.

5 POINTS of SUPERIORITY



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Pumping Equipment Installations Will Have Material Increase During Current Year

Curtailment programs deferred need of pumps on many wells during 1938; large percentage of work this year in areas of short flowing life

By BRAD MILLS, Associate Editor

EXPENDITURES for pumping equipment during 1939 should be up materially over those in 1938. Several factors combined last year to cause postponement of planned pumping operations in several districts, but most of those factors will not be seriously felt this year. Many companies will drill fewer wells and will develop less flush production than normally has entered into the picture. This should lead to the necessity for increased pumping operations in settled and semi-flush fields.

An analysis of reports from producing companies in almost every district points to increased pumping operations. Some of the large companies reported they would spend less for pumping equipment during 1939 than during 1938, but the average for all companies reporting was materially up.

The number of wells going on the pump in 1938 was considerably smaller than was anticipated during the year. Many of the larger companies depended chiefly on flush production for output. The carry-over of weak flowing wells from last year was heavy, and a good percentage of such producers will go on the pump this year.

The East Texas field, undoubtedly the industry's greatest potential pumping area, fell far short of its expected quota of pumping wells during 1938. The two-day shut-in of all wells checked the bottom-hole pressure decline and preserved the flowing status of many weak wells. A larger number of East Texas field wells should go on the pump during 1939, while replacement expenditures will increase.

Estimated Expenditures On Pumping in 1939

STATE OR AREA		Indicated Initial Installation Expenditures	Indicated Replacement Expenditures	Indicated Total Pumping Expenditures
Arkansas		$150,000	$200,000	$350,000
California		1,750,000	2,500,000	4,250,000
Eastern States		4,000,000	5,360,000	9,360,000
Illinois	$2,000,000	.....	.....	.....
Rest Eastern States	2,000,000	.....	.....	.....
Kansas		2,000,000	1,200,000	3,200,000
Michigan		500,000	150,000	650,000
North Louisiana		1,000,000	250,000	1,250,000
South Louisiana		75,000	50,000	125,000
Oklahoma		3,000,000	4,000,000	7,000,000
Rocky Mountain except New Mexico		600,000	400,000	1,000,000
New Mexico		700,000	600,000	1,300,000
Eastern Texas		6,500,000	825,000	7,325,000
South Texas		2,250,000	1,000,000	3,250,000
Gulf Coast, Texas		600,000	400,000	1,000,000
Texas Panhandle		1,000,000	375,000	1,375,000
West Texas		1,500,000	325,000	1,825,000
Central West Texas		300,000	425,000	725,000
North Texas		750,000	900,000	1,650,000
Total		$26,675,000	$18,960,000	$45,635,000

Illinois to Have Many Pumpers

Pumping is the principal method of well production in the Illinois Basin, where 1939 activity will run high. Only in the McClosky lime fields and in the Salem pool are flowing wells commonly found. The flowing life of the lime wells is so short that preparations for pumping equipment are made at the time of completion. Flowing life of the Bethel sand wells will be longer, but many will go on the pump in less than a year.

California will place its usual number of wells on the pump during the year. This state already has about 12,500 active pumping wells, with about a third as many shut in. In the settled fields, wells in this district go on the pump in short order, as shown by the small total of 1100 flowing wells.

Pumping operations in Oklahoma and Kansas probably will exceed those of last year. Reports indicate that about 1750 wells will go on the pump in these states during the year, with Oklahoma accounting for 1000 of the total. Replacement expenditures should be heavier than during last year.

Texas as a whole will show the largest number of initial installations, the indicated number being about 5300 and the indicated expenditure being almost $13,000,000.

[*Continued on page 158*]

JARECKI SPECIALTIES for Pumping Wells

Fig. 940
New Jarco Roller
Pull Rod Carrier

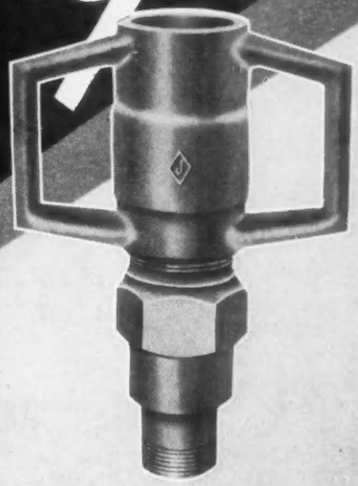
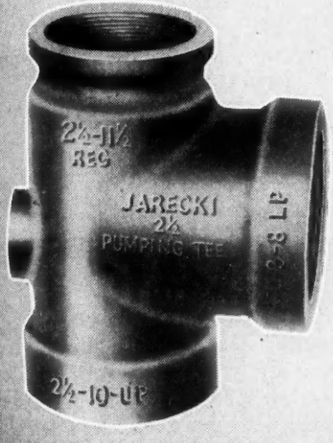


Fig. 934-K
Jarecki Erie
Improved Stuffing Box



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Jarecki Threadless
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Greater Well Depths Will Increase Drilling Costs in 1939

Survey indicates probably fewer wells and less total footage planned but more hole at the bottom will require greater per-foot costs.

By BRAD MILLS, Associate Editor

INDICATED expenditures for drilling operations during 1939 show an increase over those of 1938, and an improvement in general conditions may lead to a substantially greater outlay than was recorded last year. The indicated number of wells for 1939 is slightly less than that drilled in 1938, but greater depths in the most active areas will increase footage and boost expenditures to a higher average per well than has been shown during previous years. The trend toward deeper and more expensive drilling has been particularly strong in California, Louisiana and along the Gulf Coast.

Total drilling expenditures for 1939 are placed at $561,270,000. The indicated average drilling depth is 3173 feet for the 25,965 wells in line for completion during the year. All of these totals are considered conservative, and a decided upswing during the latter part of the year will favorably affect field activity in every large producing district.

The drop in activity in a few districts has been largely compensated by increased operations in other areas. It is possible that the lull in a few districts may be only temporary. The price of crude oil and general business conditions will be the chief governing factors throughout the year, but a collapse in crude oil prices that would adversely affect drilling operations is not expected. Many of the major operators have announced flexible drilling programs that will fluctuate with market demands and general business conditions, but the totals shown here are the average for all anticipated conditions.

Estimates for 1939 have been based largely on actual reports from representative producing companies in every major district, and many operators plan to increase their drilling programs if a decided upswing in conditions should develop. Lease requirements will force drilling activity in many of the most active areas.

Footage Off 4.7 Percent

Drilling in 1939 likely will be off around 5.6 percent in the number of wells completed, but footage drilled will likely decline only 4.7 percent.

Factors entering the uncertainty affecting budget plans are:

1. A reduction in the price of crude oil.
2. The temporary surplus of flowing wells and potential therefrom.
3. Failure of certain states to make efforts toward proration or production control.
4. Political uncertainty.

Budgets are being announced more slowly than has been done at the beginning of previous years. Several large companies have no definite drilling programs, but many expect to continue drilling operations at a rate comparable to or in excess of the past two years. The most active districts of 1938, California excepted, will not show sharp declines in the number of wells drilled in 1939.

An analysis of drilling by districts reveals several favorable trends that offset actual indicated decreases in the number of wells to be drilled this year. California will drill fewer wells than in 1938, but expenditures will not show a corresponding drop because of the greater average well depth. The Texas and Louisiana Gulf Coast expenditures will continue at a uniform or increased rate during the year, due to the trend toward deeper drilling. Illinois operations should show an increase during the year, while the improved demand for Eastern crude oil should be reflected in widespread drilling operations throughout the district. Drilling costs in Arkansas have quadrupled during the past two years as the result of recent discoveries.

Drilling costs in the United States vary from $3 per foot in the shallow cable tool districts to $16 per foot in the deepest rotary areas. The average United States cost of $6.80 includes both types of drilling. A cost of $20 per foot is not uncommon in deep wildcat wells, and in some deep fields where hard formations predominate the drilling cost per foot is more than twice the United States average.

Drilling costs in Texas as a whole are in line with the average for the United States, but the cost per foot has been reduced by efficient operations and favorable formations in the deepest producing areas. The average well depth is greater than the average for the entire country, while the drilling cost per foot is a little less. Texas will drill almost 40,000,000 feet during 1939 at a cost of more than $213,000,000. This is an average drilling cost of $5.14 per foot, as compared with a United States total of $6.80 per foot. Texas, however, will account for almost 40 percent of the total drilling expenditures during 1939, and is by far the most important oil state. Drilling equipment used in Texas is mostly of the heavy type, and the

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Forecast of Drilling Expenditures for 1939

	Usual Depth Range	Average Depth, 1939	Well Cost Range	Average Well Cost	Wells in 1939	Estimated Expenditures, 1939
Arkansas:						
Shallow	1400– 2400	2500	$8,000– $15,000	$12,000	45	$ 540,000
Deep	5500– 8000	6900	50,000– 90,000	55,000	200	11,000,000
Total Arkansas					245	11,540,000
California	1200–13000	5595	12,000– 250,000	60,000	750	45,000,000
Colorado	3000– 7000	3200	20,000– 50,000	35,000	15	525,000
Illinois	1200– 3400	1893	8,000– 23,000	16,000	2,650	42,400,000
Indiana	1000– 3000	1142	4,000– 12,000	6,000	260	1,560,000
Kansas	1500– 4400	3277	12,000– 35,000	26,000	1,575	40,950,000
Kentucky	200– 3000	1230	2,000– 12,000	5,000	970	4,850,000
Louisiana:						
North	1600– 8700	4300	10,000– 115,000	45,000	600	27,000,000
South	1500–10500	6575	15,000– 100,000	60,000	650	39,000,000
Total Louisiana					1,250	66,000,000
Michigan	1200– 4000	2500	6,000– 19,000	15,000	1,080	16,200,000
Montana	1000– 3000	2250	10,000– 35,000	20,000	110	2,200,000
Nebraska		4000		35,000	3	105,000
New Mexico	2000– 5000	3800	20,000– 50,000	37,000	470	17,390,000
New York	1000– 5000	1363	4,000– 20,000	8,000	720	5,760,000
Ohio	400– 5000	1780	4,000– 20,000	10,000	915	9,150,000
Oklahoma	500– 9000	2962	4,000– 150,000	28,000	1,920	53,760,000
Pennsylvania	200– 5000	1500	3,000– 20,000	9,000	2,060	18,540,000
Southeastern States	2000– 7000	4000	20,000– 45,000	30,000	70	2,100,000
Texas:						
East	1000– 6100	3800	4,000– 50,000	16,000	1,360	21,760,000
North	300– 4000	2400	2,000– 30,000	14,000	1,750	2,450,000
South	1000– 8000	3810	4,000– 40,000	20,000	2,700	54,000,000
Gulf Coast	1000– 9000	6550	5,000– 75,000	45,000	1,500	67,500,000
Panhandle	2200– 3500	3052	10,000– 22,000	16,000	550	8,800,000
West	1500– 6000	3600	10,000– 40,000	27,000	2,050	55,350,000
West Central	1000– 3000	1900	5,000– 20,000	10,000	335	3,350,000
Total Texas					10,245	213,210,000
Utah	3000– 6000	5000	25,000– 55,000	40,000	5	200,000
West Virginia	1000–55000	2500	4,000– 20,000	11,000	505	5,555,000
Wyoming	1200– 7500	3275	8,000– 60,000	29,000	135	3,915,000
Others	1000– 7000	3300	10,000– 60,000	30,000	12	360,000
United States Average or Total	200–13000	3173	$2,000–$250,000	$21,600	25,965	$561,270,000

lower cost per foot reflects favorable formations and not inexpensive equipment.

Texas drilling costs by districts do not show a uniform cost range. The average cost of a well in the East Texas field is about $10,000, although the major operators place the average at $11,000. In the K-M-A field the average well cost is around $21,500. In the Wasson field of West Texas, wells drilled to 5000 feet cost about $32,500, while in the Bennett field the 5300-foot wells cost around $34,000. In South Ward County the 1650- to 2050-foot wells cost from $10,000 to $12,000 each. The average Gulf Coast well costs $45,000, but the cost range is wide and flexible. The average well cost in South Texas is advancing rapidly, due to increased activity in the deep areas. In the Corpus Christi district, well costs are comparatively high, averaging around $40,000 for 6000-foot completions.

Louisiana Costs High

South Louisiana wells are completed at an average depth of 6575 feet and at an estimated cost of $60,000. Drilling in this area requires heavy equipment and frequent replacements.

North Louisiana has become a deep producing district and well costs have sharply increased since 1935. In the Cotton Valley field the cost ranges from $90,000 to $115,000 for the 8200-8800-foot zone, and averages $50,000 for the 5600-5900-foot zone; at Lisbon (5300 feet), $40,000 to $45,000; at Shreveport (5500 feet), $45,000; in shallow fields (1600-2300 feet), $10,000 to $20,000.

In Arkansas, drilling costs are much higher than the average for the United States, an interesting change in a state that formerly was only a shallow producer. Average cost in the Rodessa extension (6000-6200 feet) is about $50,000; in Columbia County (7200-7600 feet), $85,000; in Union County-Schuler (7600-7800 feet), $90,000.

California well costs by fields show a wide range for various depths. The average drilling cost at Wilmington is $50,000; Kettleman Hills, $135,000; Rio Bravo, $175,000; El Segundo, $75,000; Lakeview, $25,000; Santa Maria Valley, $40,000; Coalinga Nose, $100,000; Torrance, $55,000; Greeley, $100,000; Mt. Poso, $12,000; Ten Section, $75,000; Wasco, $250,000; Canal, $175,000; West Montebello, $70,000. A 10,000-foot well is no longer a novelty in California, and one field produces from below 13,000 feet. Since drilling will be confined largely to the deeper fields, equipment requirements will be more stringent than the shallow districts. Surplus equipment suitable for shallow drilling cannot be used.

Rocky Mountain drilling costs are varied and interesting. Northern Montana rotary drilling averages $6.50 per foot and cable tool drilling $3.50 per foot. Rotary drilling in northern Wyoming averages $10 per foot, and in southern Wyoming about $9 per foot. Lance Creek rotary drilling averages $7 per foot, while southeastern Wyoming stands at $9.50 per foot. Miscellaneous cable tool drilling averages $4 per foot. Wildcat drilling in the Rocky Mountain area averages $12 per foot for rotary and $4.75 for cable tools. Colorado prices are in line with those in Wyoming.

Oklahoma Costs Vary Widely

Oklahoma presents a varied picture, and every type of drilling may be found. Average cost of the state is $28,000 but the extreme range is wide. Deep Fox production at 8800 feet costs about $150,000 per well, but in the Seminole area, much of which is being redrilled, the well cost is about $30,000. Wells will be completed at all depths between 500 and 9000 feet, the average being just under 3000 feet.

In Michigan the Buckeye, Edenville and Freeman-Redding wells are drilled to an average depth of

[*Continued on page 160*]

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Medium Level of Earnings Indicated for 1939

Lower prices in 1938 pull profits down 50 percent from high level of 1937

Same earnings in 1939 as in 1938 would require improvement of oil prices

By L. J. LOGAN
Associate Editor

FAIRLY satisfactory earnings for the oil industry in 1939 are promised, although it is uncertain whether the profits will be under or above those of 1938.

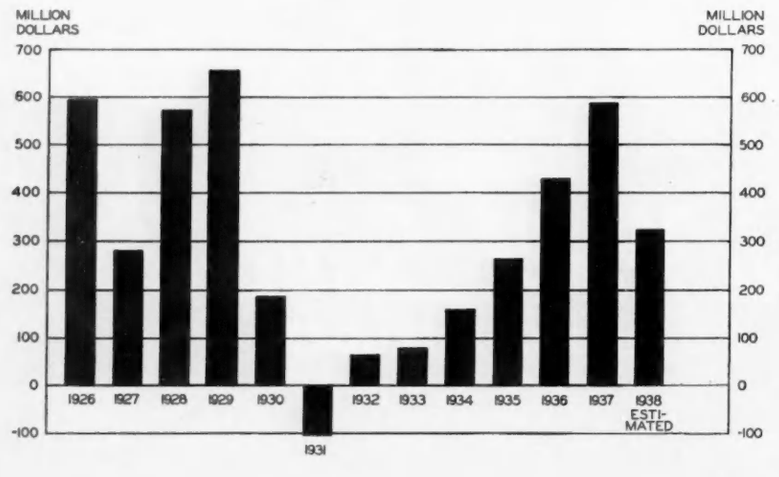
A good guess, probably, is that earnings for 1939 may be about the same as those of 1938, which were a little below the average for the past five years.

Profits Down in 1938

After having operated at a loss in 1931, when the depression and the East Texas boom combined to wipe out opportunities for profit, the industry showed a steady improvement in earning power through 1937. In that year, profits were around the best on record, having been about the same as in 1926 and 1929, two other exceptionally profitable years. But earnings in 1938 were only about one half as large as those of 1937, because of slightly reduced demand for petroleum, depressed prices of petroleum products, and somewhat lower prices for crude oil.

Earnings of 44 Oil Companies for 1938 Estimated About 50 Percent Lower Than for 1937

Chart shows reported net profits for years 1926-1937 and estimated profit for 1938.



Cheerful View Taken

There is some hope in the industry that profits for 1939 may equal or exceed those of 1938, although an analysis of circumstances indicates a definite possibility that oil company earnings may not be as large in 1939 as in 1938.

On the cheerful side of the picture are various favorable factors in the oil industry situation as well as the expectations that business in general, including most industries, will improve this year.

It is generally expected that petroleum consumption will be around 5 percent larger in 1939 than in 1938. Consequently, oil companies probably will have improved opportunity for profit from the standpoint of volumes of business.

Market Outlook Good

The outlook is less clear as regards prices for crude oil and refined products, although there is hope in the industry that this year eventually will bring better prod-

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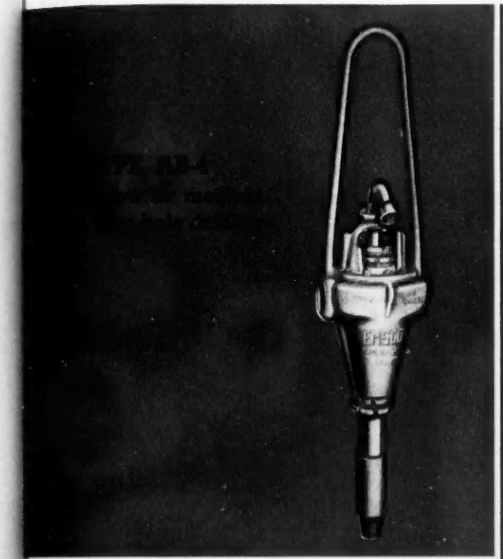

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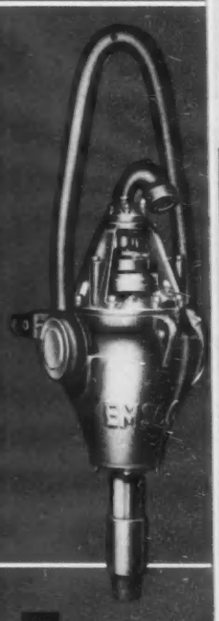

CONTINENTAL

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uct prices and possibly a partial or complete recovery of the ground lost by the crude oil markets in the latter part of 1938.

So far this year, product prices have been largely stationary at the comparatively low levels to which they sank in late 1937 and 1938. However, there has been a little improvement in prices of some products, including kerosene and fuel oils. And the gasoline market hardly could be expected to grow strong in mid-winter, although it may show improvement around the beginning of spring, when the seasonal increase in consumption occurs.

Crude oil prices also have been largely unchanged so far this year, despite some fears of reductions in California and further cuts in the Mid-Continent. And the only important revisions have been the increases of 9 to 12 cents a barrel for Pennsylvania grade oils January 21, which resulted from better demand for industrial lubricants.

These minor increases in prices of products and crude are encouraging, and it probably is reasonable to hope for further improvement in coming months, particularly in view of the fact that the prices still are around the bottom levels to which they declined in the recession.

Strict Curtailment Needed

The primary requisite for the attainment of better crude and refined oil prices is an effective balancing of crude production and refinery output with market demand. In the past few weeks both crude output and refinery runs have increased above economic levels, and curtailment at wells and plants would be desirable, particularly in view of the fact that some companies would like to reduce surplus stocks of crude that they have in storage.

There is hope in the industry that both crude production and refinery runs will be controlled with fair success in 1939, especially after the beginning of spring, when larger consumption will make the problem less difficult. But potential production is great, and only strict regulation of operations will assure the maintenance of a balance between supply and demand.

Prices Still Depressed

From their present comparatively low levels, prices of both crude oil and refined products would have to improve materially to average as high in 1939 as in 1938. Crude prices in the first 8½ months of 1938 were still at 1937 levels, which were the best since the depression; and the average price for the year was probably about $1.15 a barrel. So far in 1939, the average price has been only a little over $1 a barrel.

Product prices were on a downward trend throughout 1938, and so far none of the decline has been re-traced. The average tank car price of regular grade gasoline has been about ⅝ cent a gallon lower in early 1939 than in early 1938, and the average price to the dealer is down about the same amount.

Prices of Oil Company Securities Improved in 1938, Although Earnings of the Industry Were Down About 50 Percent, While Dividends Were About 25 Percent Lower

Including data on a group of representative oil companies, this table affords a cross-section of recent financial results and trends in the industry. The table is based on information published in the "Monthly Oil Review" of Carl H. Pforzheimer & Company.

COMPANY	Price Range 1929-1937 High	Price Range 1929-1937 Low	Price Range 1937 High	Price Range 1937 Low	Price Range 1938 High	Price Range 1938 Low	Price Range 1938 Last	Earnings per Common Share Interim Earnings Period	Interim Earnings 1937	Interim Earnings 1938	Year's Earnings in 1937	Dividends per Common Share 1937	Dividends per Common Share 1938
Amerada Corp	125½	11¼	114⅞	51½	78	55	70	9 mos.	2.12	1.72	3.04	2.00	2.00
Atlantic Refining Co	77⅞	8⅝	37	18	27⅜	17¾	22½	9 mos.	2.64	1.31	3.51	1.00	1.00
Barnsdall Oil Co	49⅛	3	35¼	10	21⅜	10⅛	18⅞	9 mos.	0.99	1.16	0.85	1.00	1.00
Consolidated Oil Corp	45	4	17⅞	7	10¾	7	9	6 mos.	0.67	0.28	1.48	0.90	0.80
Continental Oil Co	44⅞	3⅝	49	24	35¾	21¼	[1]31¼	9 mos.	2.48	1.24	2.98	1.50	[7]1.00
Creole Petroleum Corp	39	1⅝	38¾	20¼	27½	17½	23¾	.....	....	....	1.61	1.00	1.00
Gulf Oil Corp	[2]209	[2]23	63½	33	46⅞	33	39¼	.....	....	....	3.51	1.00	1.00
Houston Oil Co	27⅜	1⅝	17⅝	4¾	9¾	5	8	9 mos.	0.77	0.81	0.94	....	....
Humble Oil & Refining Co	64	[2]35⅝	87	54⅞	72⅝	56	69¾	.....	....	....	5.22	2.00	2.00
Lion Oil Co	38⅞	⅞	34	12½	25⅛	15⅝	[1]20⅛	9 mos.	2.42	2.26	2.17	1.50	1.00
Mid-Continent Petroleum Corp	39⅞	3¾	35⅝	14	22⅝	12¼	16½	9 mos.	2.48	0.81	2.86	1.50	0.60
Midwest Oil Co	....	....	14⅝	6¼	9¾	6⅝	8½	9 mos.	0.76	0.76	[5]1.14	1.00	1.00
Mountain Producers Co	22⅞	2	7⅞	4⅛	5¾	4½	5⅛	.....	....	....	0.76	0.60	0.60
Ohio Oil Co	34½	4¾	22⅞	9	14⅞	8⅞	9¾	9 mos.	1.20	0.23	1.30	1.00	0.20
Phillips Petroleum Co	52⅝	2	64	30⅛	44⅜	27¼	43⅜	9 mos.	4.45	2.13	5.42	2.75	[7]2.00
Plymouth Oil Co	37	6	29⅞	13	25⅜	15	[1]22⅞	9 mos.	2.01	1.97	2.85	1.65	1.40
Pure Oil Co	30¾	2½	24⅝	8¾	13½	8¼	11	.....	....	....	2.15	0.25	....
Seaboard Oil Co	69⅜	5½	54½	16	27½	15½	[1]21½	9 mos.	1.43	1.08	1.97	1.00	1.00
Shell Union Oil Corp	31¾	2½	34¾	14⅞	18⅜	10	[1]15½	9 mos.	1.11	0.61	1.44	1.00	0.70
Skelly Oil Co	47⅜	2	60⅝	26½	34¾	18½	28¼	9 mos.	5.02	1.67	6.07	1.50	1.00
Socony-Vacuum Oil Co	48¼	5¼	23¼	13	16⅜	10¾	13½	6 mos.	1.01	0.61	1.82	0.80	0.50
South Penn Oil Co	60¼	9¼	56	35	39	28¾	[1]32½	6 mos.	3.28	0.85	4.64	3.65	1.75
Standard Oil, California	81⅞	15⅛	50	27⅛	34⅞	25⅛	28⅝	9 mos.	2.39	1.84	3.17	2.00	1.40
Standard Oil, Indiana	63	13⅜	50	26½	35½	24¾	28⅝	6 mos.	1.83	1.16	3.66	2.30	1.00
Standard Oil, Kansas	49	7	43	30⅝	50⅛	32½	50⅛	9 mos.	4.54	4.74	[4]6.93	5.00	2.00
Standard Oil, Kentucky	46⅞	8⅜	21⅛	14¾	18¾	15	17⅝	.....	....	....	1.60	1.50	1.25
Standard Oil, Nebraska	50¼	7¾	13¾	8	8¾	5½	6½	.....	....	....	[3]0.58	0.25	....
Standard Oil, New Jersey	84⅞	19⅞	76	42	58⅜	39¾	53½	.....	....	....	5.64	2.50	[8]1.50
Standard Oil, Ohio	129	12¼	45	16	22¾	[1]6¼	19⅞	.....	....	....	3.67	1.50	1.00
Sun Oil Co	91	24¾	77½	44½	65⅛	45	65⅛	6 mos.	1.90	0.63	3.86	[6]1.00	1.00
Texas Corp	71⅞	9¼	65⅛	34¾	49⅝	32⅜	[1]48	6 mos.	2.48	1.27	5.02	2.25	2.00
Texas Pacific Coal & Oil Co	23⅞	1⅜	16⅝	5⅜	12½	7	9⅞	9 mos.	0.81	0.88	1.11	0.40	0.40
Tide Water Associated Oil Co	23½	2	21⅝	13½	15¾	10⅛	13¾	9 mos.	1.61	1.05	2.08	1.20	1.00
Union Oil Co. of California	57	8	28¼	17½	22½	17⅛	18¾	9 mos.	1.90	1.37	2.58	1.40	1.20

[1] Ex-dividend. [2] Old Stock. [3] Deficit. [4] Includes non-recurring items. [5] Excludes non-recurring losses. [6] Also 8 percent in stock. [7] Also right to subscribe to bonds. [8] Also 1½ percent stock.

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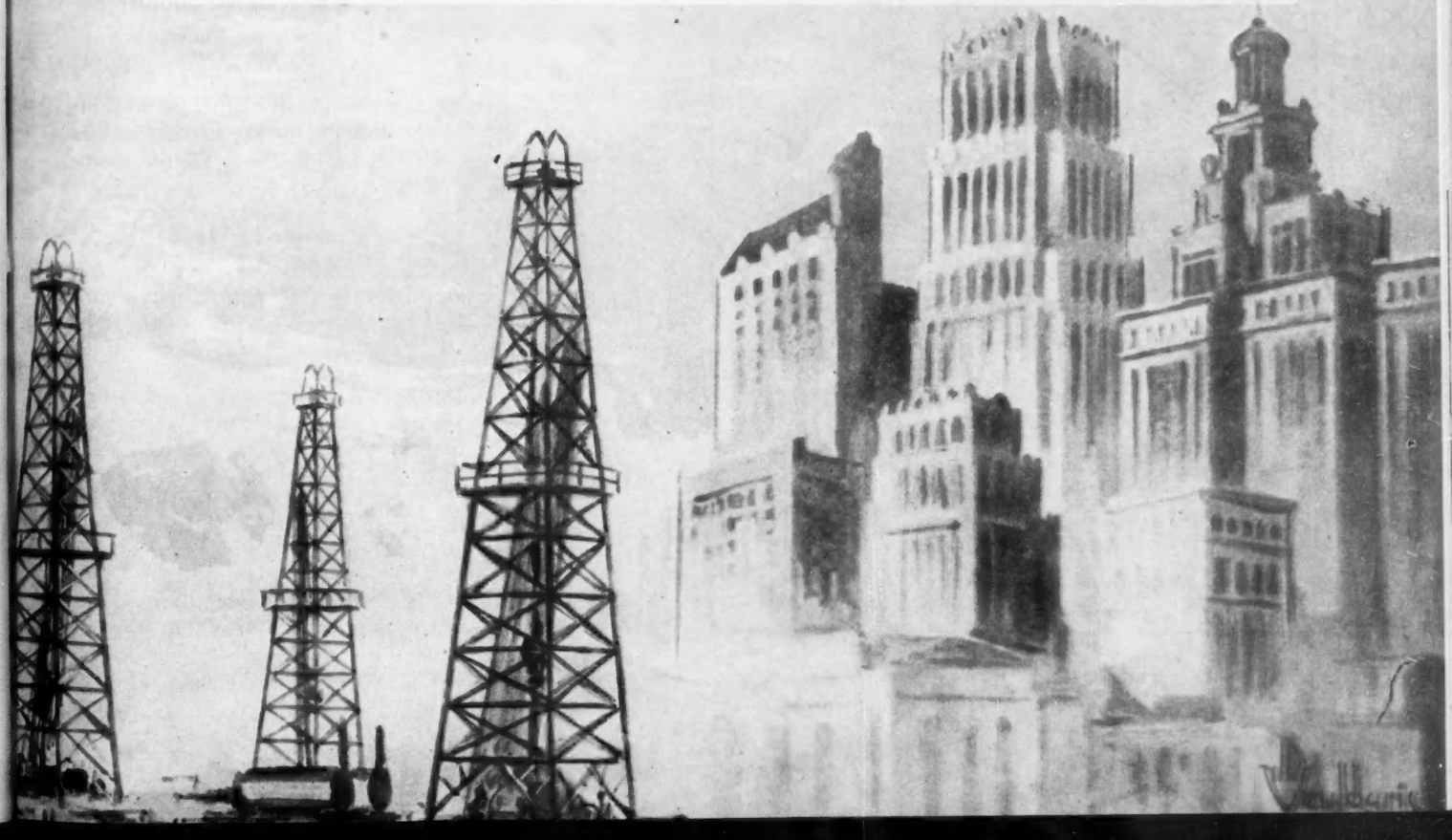


U. S. Production Likely to Resume Rise in 1939

Output declined 5.2 percent in 1938 from all-time peak of previous year, as normal upward trend of petroleum consumption was interrupted

By L. J. LOGAN, Associate Editor

UNITED STATES crude oil production probably will resume in 1939 the normal, gradually rising trend that accompanies the continuous growth of oil consumption, following the interruption of that trend by the business recession in 1938. For improvement of demand for petroleum appears fairly well assured in 1939.

However, the country's production was down 5.2 percent in 1938, after having reached an all-time peak in 1937; and it remains to be seen whether or not the lost ground will be regained in 1939, by the setting of a new record.

Production Held Down

Two principal influences held crude production down in 1938, namely: (1) the curtailed demand for petroleum, and (2) the desire of the industry to withdraw more surplus crude from storage.

Trends of oil consumption were closely watched by the industry and the state conservation officials, and production was curtailed fairly well in line with the less favorable demand.

Crude Taken From Storage

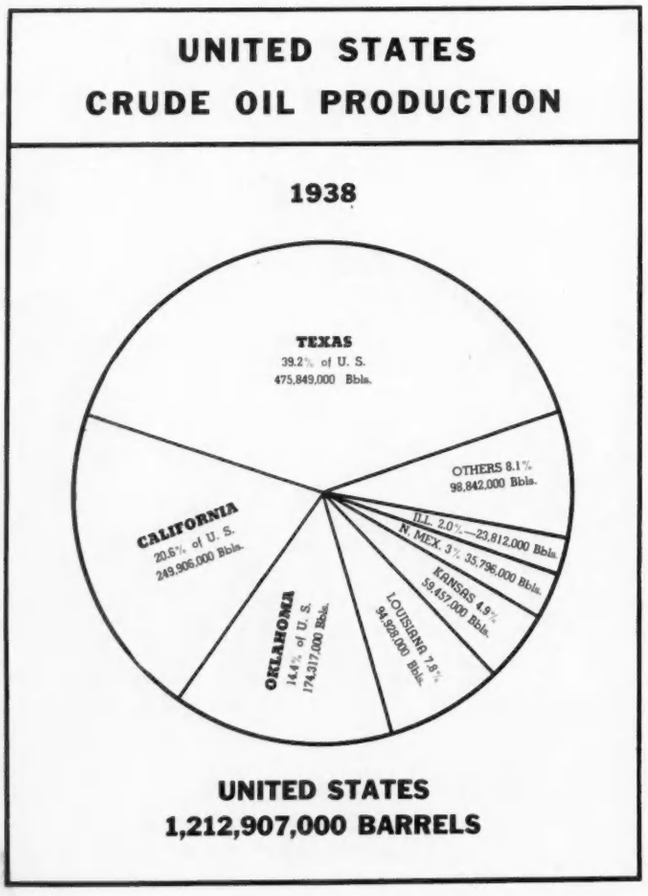
At the same time, substantial quantities of crude oil were taken out of storage, the crude stocks having been reduced more than 30,000,000 barrels within the year; although additions of refined products to storage about equaled the withdrawals of crude, with the result that the above-ground stocks of all oils did not show any material net change within the year.

In 1939 the crude oil production will be influenced by improving rather than lagging demand, it is indicated; but the crude output may be retarded again as in 1938 by the desire of some of the oil companies to make further withdrawals of surplus crude from storage.

Outlook for 1939

It is generally expected that demand for United States petroleum will be around 5 percent larger in 1939 than in 1938, despite an indicated decline in exports. From the standpoint of demand, therefore, a recovery of crude output approximately to the 1937 peak would appear quite possible.

It appears likely, furthermore, that the desire to withdraw crude from storage will be less insistent in 1939 than in 1938, and that any net reduction of crude stocks within the year will be less than that of



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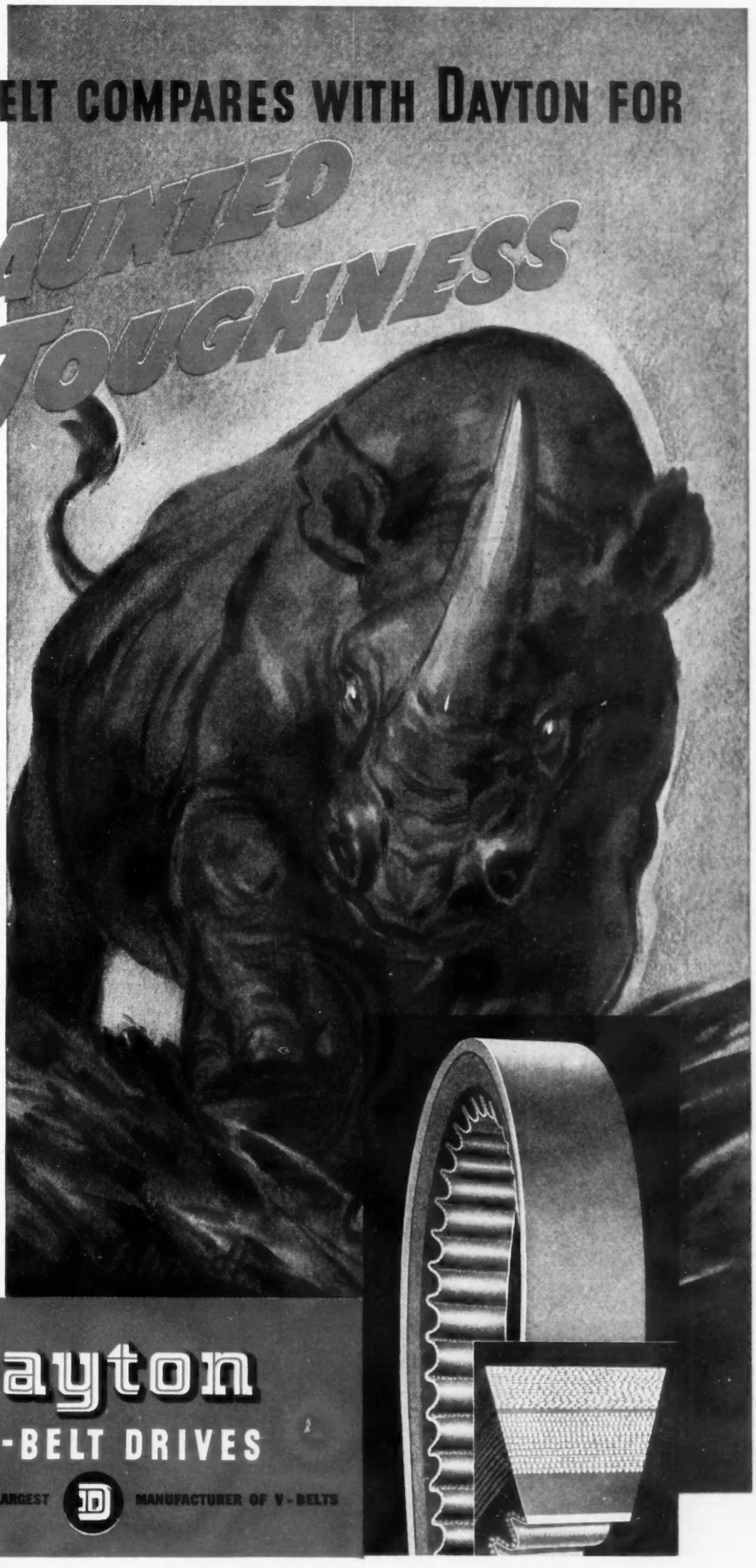

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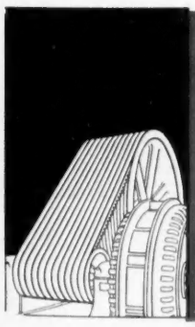

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1938. In this connection, it may be pointed out that some companies largely eliminated surplus crude storage in 1938 and will not make further important withdrawals in 1939; while others may cut their stocks down to minimum working levels at different times in 1939 if withdrawals are continued.

Another factor which will partially determine the amount of crude production in 1939 will be the relative strictness in regulating refinery operations. In both 1937 and 1938 refinery runs of crude oil were higher than economically desirable, and crude oil was being converted into surplus gasoline and other finished products, instead of being left in storage or underground. Lately, much emphasis has

United States Crude Oil Production, by States, by Years

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Pennsylvania	New York	Ohio	West Virginia	California	Kentucky	Tennessee	Colorado	Indiana	Illinois	Kansas	Texas	Missouri	YEAR
1859	2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1859
1860	500,000	.....	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1860
1861	2,113,609	.....	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1861
1862	3,056,690	.....	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1862
1863	2,611,309	.....	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1863
1864	[A]2,116,000	[A]109	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1864
1865	[A]2,397,792	[A]99,908	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1865
1866	[A]3,453,792	[A]143,908	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1866
1867	[A]3,213,408	[A]133,892	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1867
1868	[A]3,500,272	[A]145,845	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1868
1869	[A]4,046,400	[A]168,600	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1869
1870	[A]5,050,315	[A]210,430	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1870
1871	[A]4,997,025	[A]208,209	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1871
1872	[A]6,041,466	[A]251,728	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1872
1873	[A]9,498,035	[A]395,751	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1873
1874	[A]10,489,867	[A]437,078	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1874
1875	[A]8,436,013	[A]351,501	B	B	.....	B	C	.....	.....	.....	.....	.....	.....	1875
1876	[A]8,610,150	[A]358,756	31,763	120,000	12,000	B, D	D	.....	.....	.....	.....	.....	.....	1876
1877	[A]12,610,056	[A]525,419	29,888	172,000	13,000	B, D	D	.....	.....	.....	.....	.....	.....	1877
1878	[A]14,556,924	[A]606,538	36,179	180,000	15,227	B, D	D	.....	.....	.....	.....	.....	.....	1878
1879	[A]18,897,769	[A]787,407	29,112	180,000	19,858	B, D	D	.....	.....	.....	.....	.....	.....	1879
1880	[A]24,986,526	[A]1,041,105	38,940	179,000	40,552	B, D	D	.....	.....	.....	.....	.....	.....	1880
1881	[A]26,281,449	[A]1,095,060	33,867	151,000	99,862	B D	D	.....	.....	.....	.....	.....	.....	1881
1882	23,368,000	6,685,000	39,761	128,000	128,636	B, D	D	.....	.....	.....	.....	.....	.....	1882
1883	19,125,000	4 [illegible]04,000	47,632	126,000	142,857	[D]4,755	D	.....	.....	.....	.....	.....	.....	1883
1884	20,541,000	3 [illegible]31,000	90,081	90,000	262,000	[D]4,148	D	.....	.....	.....	.....	.....	.....	1884
1885	18,118,000	2, [illegible]58,000	661,580	91,000	325,000	[D]5,164	D	.....	.....	.....	.....	.....	.....	1885
1886	23,647,000	2,151,000	1,782,970	102,000	377,145	[D]4,726	D	.....	.....	.....	.....	.....	.....	1886
1887	20,281,000	2,075,000	5,022,632	145,000	678,572	[D]4,791	D	76,295	.....	.....	.....	.....	.....	1887
1888	14,700,000	1,789,000	10,010,868	119,448	690,333	[D]5,096	D	297,612	.....	.....	.....	.....	.....	1888
1889	19,591,000	1,897,000	12,471,466	544,113	303,220	[D]5,400	D	316,476	33,375	1,460	500	48	20	1889
1890	26,800,000	1,658,000	16,124,656	492,578	307,360	[D]6,000	D	368,842	63,496	900	1,200	54	278	1890
1891	31,424,000	1,585,000	17,740,301	2,406,218	323,600	[D]9,000	D	665,482	136,634	675	1,400	54	25	1891
1892	27,149,000	1,273,000	16,362,921	3,810,086	385,049	[D]6,500	D	824,000	698,069	521	5,000	45	10	1892
1893	19,283,000	1,032,000	16,249,769	8,445,412	470,179	[D]3,000	D	594,390	2,335,293	400	18,000	50	50	1893
1894	18,078,000	942,000	16,792,154	8,577,624	705,969	[D]1,500	D	515,746	3,688,666	300	40,000	60	8	1894
1895	18,231,000	913,000	19,545,233	8,120,125	1,208,482	[D]1,500	D	438,232	4,386,132	200	44,430	50	10	1895
1896	19,379,000	1,205,000	23,941,169	10,019,770	1,252,777	[D]1,680	D	361,450	4,680,732	250	113,571	1,450	43	1896
1897	17,983,000	1,279,000	21,560,515	13,090,045	1,903,411	[D]322	D	384,934	4,122,356	500	81,098	65,975	19	1897
1898	14,743,000	1,205,000	18,738,708	13,615,101	2,257,207	[D]5,568	D	444,383	3,730,907	360	71,980	546,070	10	1898
1899	13,054,000	1,321,000	21,142,108	13,910,630	2,642,095	[D]18,280	D	390,278	3,848,182	360	69,760	669,013	132	1899
1900	13,258,202	1,300,925	22,362,730	16,195,675	4,324,484	[D]62,259	D	317,385	4,874,392	200	74,714	836,039	[E]1,602	1900
1901	12,625,378	1,206,618	21,648,083	14,177,126	8,786,330	[D]137,259	D	460,520	5,757,086	250	179,151	4,393,658	[E]2,335	1901
1902	12,063,880	1,119,730	21,014,231	13,513,345	13,984,268	[D]185,331	D	396,901	7,480,896	200	331,740	18,083,658	[E]757	1902
1903	11,355,156	1,162,978	20,480,286	12,899,395	24,382,472	[D]554,286	D	483,925	9,186,411	.....	932,214	17,955,572	[E]3,000	1903
1904	11,125,762	1,113,264	18,876,631	12,644,686	29,649,434	[D]998,284	D	501,763	11,339,124	.....	4,250,779	22,241,413	[E]2,572	1904
1905	10,437,195	1,117,582	16,346,660	11,578,110	33,427,473	[D]1,217,337	D	376,238	10,964,247	181,084	[H]3,750,000	28,136,189	[E]3,100	1905
1906	10,256,893	1,243,517	14,787,763	10,120,935	33,098,598	[D]1,213,548	D	327,582	7,673,477	4,397,050	[H]3,627,000	12,567,897	[E]3,500	1906
1907	9,999,306	1,212,300	12,207,448	9,095,296	39,748,375	[D]820,844	D	331,851	5,128,037	24,281,973	2,409,521	12,322,696	[E]4,000	1907
1908	9,424,325	1,160,128	10,858,797	9,523,176	44,854,737	727,767	.....	379,653	3,283,629	33,686,238	1,801,781	11,206,464	[E]15,246	1908
1909	9,299,403	1,134,897	10,632,793	10,745,092	55,471,601	639,016	.....	310,861	2,296,086	30,898,339	1,263,764	9,534,467	[E]5,750	1909
1910	8,794,662	1,053,838	9,916,370	11,753,071	73,010,560	468,774	.....	239,794	2,159,725	33,143,362	1,128,668	8,899,266	[E]3,615	1910
1911	8,248,158	952,515	8,817,112	9,795,464	81,134,391	472,458	.....	226,926	1,695,289	31,317,038	1,278,819	9,526,474	[E]7,995	1911
1912	7,837,948	874,128	8,969,007	12,128,962	87,269,000	484,368	.....	206,052	970,009	28,601,308	1,592,796	11,735,057	.....	1912
1913	7,917,302	948,191	8,781,468	11,567,299	97,788,525	524,568	.....	188,799	956,095	23,893,899	2,375,029	15,009,478	[F]	1913
1914	8,170,335	938,974	8,536,352	9,680,033	99,775,327	502,441	.....	222,773	1,335,456	21,919,749	3,103,585	20,068,184	[F]	1914
1915	7,838,705	887,778	7,825,326	9,264,798	86,591,535	437,274	.....	208,475	875,758	19,041,695	2,823,487	24,942,701	[F]	1915
1916	7,592,394	874,087	7,744,511	8,731,184	90,951,936	[J]1,202,569	[J]677	197,235	769,036	17,714,235	8,738,077	27,644,605	[F]	1916
1917	7,733,200	879,685	7,750,540	8,379,285	93,877,549	[J]3,088,160	[J]12,196	121,231	759,432	15,776,860	36,536,125	32,413,287	.....	1917
1918	7,407,812	808,843	7,285,005	7,866,628	97,531,997	[J]4,367,968	[J]8,374	143,286	877,558	13,365,974	45,451,017	38,750,031	.....	1918
1919	8,137,000	851,000	7,736,000	8,327,000	101,183,000	9,278,000	15,000	121,000	972,000	11,960,000	33,048,000	79,366,000	[F]	1919
1920	7,438,000	906,000	7,400,000	8,249,000	103,377,000	8,738,000	14,000	111,000	945,000	10,774,000	39,005,000	96,868,000	.....	1920
1921	7,418,000	988,000	7,335,000	7,822,000	112,600,000	9,013,000	12,000	108,000	1,158,000	10,043,000	36,456,000	106,166,000	[F]	1921
1922	7,425,000	1,000,000	6,781,000	7,021,000	138,468,000	8,973,000	10,000	97,000	1,087,000	9,383,000	31,766,000	118,684,000	[F]	1922
1923	7,609,000	1,250,000	7,085,000	6,358,000	262,876,000	8,069,000	8,000	86,000	1,043,000	8,707,000	28,250,000	131,023,000	[F]	1923
1924	7,486,000	1,440,000	6,811,000	5,920,000	228,933,000	7,407,000	10,000	445,000	935,000	8,081,000	28,836,000	134,522,000	.....	1924
1925	8,097,000	1,695,000	7,212,000	5,763,000	232,492,000	6,759,000	24,000	1,226,000	829,000	7,863,000	38,357,000	144,648,000	.....	1925
1926	8,961,000	1,956,000	7,272,000	5,946,000	224,673,000	6,274,000	43,000	2,768,000	808,000	7,760,000	41,498,000	166,916,000	.....	1926
1927	9,526,000	2,242,000	7,593,000	6,023,000	231,196,000	6,719,000	60,000	2,831,000	852,000	6,994,000	41,069,000	217,389,000	.....	1927
1928	9,956,000	2,603,000	7,015,000	5,661,000	231,811,000	7,359,000	46,000	2,774,000	1,052,000	6,462,000	38,566,000	257,326,000	.....	1928
1929	11,820,000	3,377,000	6,743,000	5,574,000	292,534,000	7,775,000	19,000	2,358,000	981,000	6,319,000	42,813,000	296,876,000	.....	1929
1930	12,803,000	3,647,000	6,486,000	5,071,000	227,329,000	7,389,000	21,000	1,656,000	994,000	5,736,000	41,638,000	290,457,000	.....	1930
1931	11,892,000	3,363,000	5,327,000	4,472,000	188,830,000	6,456,000	6,000	1,545,000	840,000	5,039,000	37,018,000	332,437,000	.....	1931
1932	12,412,000	3,508,000	4,644,000	3,876,000	178,128,000	6,287,000	5,000	1,136,000	806,000	4,673,000	34,848,000	312,478,000	[F]	1932
1933	12,624,000	3,181,000	4,235,000	3,815,000	172,010,000	4,608,000	5,000	919,000	737,000	4,244,000	41,976,000	402,609,000	[F]	1933
1934	14,478,000	3,804,000	4,234,000	4,095,000	174,305,000	4,860,000	10,000	1,139,000	838,000	4,479,000	46,482,000	381,516,000	[F]	1934
1935	15,810,000	4,236,000	4,082,000	3,902,000	207,832,000	5,258,000	[F]	1,560,000	777,000	4,322,000	54,843,000	392,666,000	[F]	1935
1936	17,070,000	4,663,000	3,847,000	3,847,000	214,773,000	5,633,000	[F]	1,650,000	822,000	4,475,000	58,317,000	427,411,000	[F]	1936
1937[M]	19,189,000	5,478,000	3,559,000	3,845,000	238,521,000	5,484,000	[F]	1,605,000	844,000	7,499,000	70,761,000	510,318,000	[F]	[M]1937
1938[N]	17,414,000	5,036,000	3,287,000	3,675,000	249,906,000	5,823,000	[F]	1,419,000	964,000	23,812,000	59,457,000	475,849,000	[F]	[N]1938
Total	951,912,883	119,078,222	582,049,386	403,736,710	5,121,999,983	156,353,941	329,247	36,873,370	124,389,584	456,850,380	967,129,155	5,603,069,005	54,077	Total

GENERAL FOOTNOTE: In addition to the figures shown above, *Mineral Resources* gives the following information: Tennessee and Kentucky had small showings of oil shortly after the discovery of oil in the Pennsylvania district in 1859 and in the years 1886-1889; Texas in 1886, 1888 and 1889, and Indiana in 1888 and 1889. No record of the amount of production during these years is available.

[A] Pennsylvania and New York separated in years 1864-1881 by aid of *Arnold and Kemnitzer* and *Mineral Resources*.

[B] *Arnold and Kemnitzer* give the following additional estimates which are not shown by the official *Mineral Resources:* Ohio, 1860-1875, 200,000 barrels; West Virginia, 1860-1875, 2,800,000 barrels; Kentucky, 1860-1882, 161,000 barrels.

[C] Little production but no record available.

[D] Small production in Tennessee included with Kentucky.

[E] In 1900-1911 Michigan shown with Missouri.

[F] Included with unclassified.

been placed on the need for properly regulating refinery runs, but it remains to be seen whether or not the excesses of past years will be avoided this year. If crude runs to stills are strictly held down, a restraining influence will be placed over crude production. But so far this year, refinery runs have been comparatively heavy, and it appears doubtful if they will be much more moderate in 1939 than in 1938.

United States crude oil production in 1938 totaled approximately

United States Crude Oil Production, by States, by Years—(Continued)

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Oklahoma	Wyoming	Louisiana	Montana	Arkansas	New Mexico	Michigan	Mississippi	[K]Utah	[L]Alaska	Unclassified	Total United States	Total Value At Wells	[I]Average Value Per Bbl	YEAR
1859												2,000	$ 32,000	$20.00	1859
1860												500,000	4,800,000	9.60	1860
1861												2,113,609	1,035,668	0.52	1861
1862												3,056,690	3,209,525	1.05	1862
1863												2,611,309	8,225,663	3.15	1863
1864												2,116,109	20,896,576	8.15	1864
1865												2,497,700	16,459,853	6.59	1865
1866												3,597,700	13,455,398	3.75	1866
1867												3,347,300	8,066,993	2.40	1867
1868												3,646,117	13,217,174	3.62	1868
1869												4,215,000	23,730,450	5.60	1869
1870												5,260,745	20,503,754	3.90	1870
1871												5,205,234	22,591,180	4.40	1871
1872												6,293,194	21,440,503	3.75	1872
1873												9,893,786	18,100,464	1.80	1873
1874												10,926,945	12,647,527	1.15	1874
1875												8,787,514	7,368,133	0.97	1875
1876												9,132,669	22,982,822	2.52	1876
1877												13,350,363	31,788,566	2.38	1877
1878												15,394,868	18,044,520	1.17	1878
1879												19,914,146	17,210,708	0.86	1879
1880												26,286,123	24,600,638	0.94	1880
1881												27,661,238	25,448,339	0.92	1881
1882												30,349,397	23,631,165	0.78	1882
1883												23,450,244	25,790,252	1.10	1883
1884												24,218,229	20,595,966	0.85	1884
1885												21,858,744	19,198,243	0.88	1885
1886												28,064,841	19,996,313	0.71	1886
1887												28,283,290	18,877,094	0.67	1887
1888												27,612,357	17,947,620	0.65	1888
1889												35,164,078	26,963,340	0.77	1889
1890												45,823,364	35,365,105	0.77	1890
1891	30											54,292,419	30,526,553	0.56	1891
1892	80											50,514,280	25,906,463	0.51	1892
1893	10											48,431,553	28,950,326	0.60	1893
1894	130	2,369										49,344,526	35,522,095	0.72	1894
1895	37	3,455										52,891,886	57,632,296	1.09	1895
1896	170	2,878										60,959,940	58,518,709	0.96	1896
1897	625	3,650										60,475,450	40,874,072	0.69	1897
1898		5,475										55,363,769	44,193,359	0.80	1898
1899		5,560										57,071,338	64,603,904	1.13	1899
1900	6,472	5,450					E					63,620,529	75,989,313	1.19	1900
1901	10,000	5,400					E					69,389,194	66,417,335	0.96	1901
1902	37,100	6,253	548,617				E					88,766,916	71,178,910	0.80	1902
1903	138,911	8,960	917,771				E					100,461,337	94,694,050	0.94	1903
1904	1,366,748	11,542	2,958,958				E			C		117,080,960	101,175,455	0.86	1904
1905	[H]8,264,000	8,454	8,910,416				E					134,718,085	84,157,399	0.62	1905
1906	[H]18,091,000	7,000	9,077,528				E					126,493,288	92,444,735	0.73	1906
1907	43,524,128	[G]9,339	5,000,221				E		G	C		166,095,335	120,106,749	0.72	1907
1908	45,798,765	[G]17,775	5,788,874				E		G			178,527,355	129,079,184	0.72	1908
1909	47,859,218	[G]20,056	3,059,531				E		G			183,170,874	128,328,487	0.70	1909
1910	52,028,718	[G]115,430	6,841,395				E		G			209,557,248	127,899,688	0.61	1910
1911	56,069,637	[G]186,695	10,720,420				E		G	C		220,449,391	134,044,752	0.61	1911
1912	51,427,071	[G]1,572,306	9,263,439				E		G	F	4,000	222,935,451	164,213,247	0.74	1912
1913	63,579,384	2,406,522	12,498,828			F	E		C	F	11,000	248,446,387	237,121,388	0.95	1913
1914	73,631,724	3,560,375	14,309,435				E		C	F	8,000	265,762,743	214,125,215	0.81	1914
1915	97,915,243	4,245,525	18,191,539				E		C	F	14,000	281,103,839	179,462,890	0.64	1915
1916	107,071,715	6,234,137	15,248,138	44,917			E		C	F	8,000	300,767,453	336,899,868	1.10	1916
1917	107,507,471	8,978,680	11,392,201	99,399			E		C	F	10,300	335,315,601	522,635,213	1.56	1917
1918	103,347,070	12,596,287	16,042,600	69,323			E		C	F	7,943	355,927,716	703,543,961	1.98	1918
1919	86,911,000	13,172,000	17,188,000	90,000		F	E		C	F	12,000	378,367,000	760,266,000	2.01	1919
1920	106,206,000	16,831,000	35,714,000	340,000	F	F			F	F	13,000	442,929,000	1,360,745,000	3.07	1920
1921	114,634,000	19,333,000	27,103,000	1,509,000	10,473,000	F				F	12,000	472,183,000	814,745,000	1.73	1921
1922	149,571,000	26,715,000	35,376,000	2,449,000	12,712,000	F				F	13,000	557,531,000	895,111,000	1.61	1922
1923	160,929,000	44,785,000	24,919,000	2,782,000	36,610,000	F				F	18,000	732,407,000	978,430,000	1.34	1923
1924	173,538,000	39,498,000	21,124,000	2,815,000	46,028,000	98,000			F	F	13,000	713,940,000	1,022,683,000	1.43	1924
1925	176,768,000	29,173,000	20,272,000	4,091,000	77,398,000	1,060,000	4,000		F	F	12,000	763,743,000	1,284,960,000	1.68	1925
1926	179,195,000	25,776,000	23,201,000	7,727,000	58,332,000	1,666,000	94,000		F	F	8,000	770,874,000	1,447,760,000	1.88	1926
1927	277,775,000	21,307,000	22,818,000	5,058,000	40,005,000	1,226,000	439,000		F	F	7,000	901,129,000	1,172,830,000	1.30	1927
1928	249,857,000	21,461,000	21,847,000	4,015,000	32,096,000	943,000	594,000		F	F	6,000	901,474,000	1,054,880,000	1.17	1928
1929	255,004,000	19,314,000	20,554,000	3,980,000	24,917,000	1,830,000	4,528,000		F	F	7,000	1,007,323,000	1,280,417,000	1.27	1929
1930	216,486,000	17,868,000	23,272,000	3,349,000	19,702,000	10,189,000	3,911,000		F	F	7,000	898,011,000	1,070,200,000	1.19	1930
1931	180,574,000	14,834,000	21,804,000	2,830,000	14,791,000	15,227,000	3,789,000		F	F	7,000	851,081,000	550,630,000	0.65	1931
1932	153,244,000	13,418,000	21,807,000	2,457,000	12,051,000	12,455,000	6,910,000		F	F	16,000	785,159,000	680,460,000	0.87	1932
1933	182,251,000	11,227,000	25,168,000	2,273,000	11,686,000	14,116,000	7,942,000		F	F	30,000	905,656,000	608,000,000	0.67	1933
1934	180,107,000	12,556,000	32,869,000	3,603,000	11,182,000	16,864,000	10,603,000		F	F	41,000	908,065,000	904,825,000	1.00	1934
1935	185,288,000	13,755,000	50,330,000	4,603,000	11,008,000	20,483,000	15,776,000	F	F	F	65,000	996,596,000	961,440,000	.965	1935
1936	206,555,000	14,582,000	80,491,000	5,868,000	10,469,000	27,223,000	11,928,000	F	F	F	63,000	1,099,687,000	1,199,820,000	1.09	1936
1937[M]	228,839,000	19,166,000	90,924,000	5,805,000	11,764,000	38,854,000	16,628,000	F	F	F	77,000	1,279,160,000	1,513,340,000	1.18	[M]1937
1938[N]	174,317,000	19,055,000	94,928,000	4,892,000	18,066,000	35,796,000	19,143,000	F	F	F	68,000	1,212,907,000	1,394,843,000	1.15	[N]1938
Total	4,515,724,457	453,845,573	862,478,911	70,749,639	459,290,000	198,030,000	102,289,000	F	F	F	558,243	21,186,791,766	25,485,252,168	1.20	Total

[G] Insignificant production of Utah (mostly used as fuel) shown with Wyoming.

[H] Figures for Oklahoma and Kansas for years 1905-1906 shown together by *Mineral Resources;* here divided by aid of *Arnold and Kemnitzer.*

[I] Figures on average price per barrel for years 1859-1875 taken from *Arnold and Kemnitzer;* remainder from *Mineral Resources.*

[J] Kentucky and Tennessee figures in years 1916-1918 obtained with aid of *Arnold and Kemnitzer* and *Mineral Resources.*

[K] *Arnold and Kemnitzer* show for Utah the following data: 1907-1923, estimated 37,000 barrels; 1924, 3,000 barrels; 1925, 4,000 barrels; 1926, 525 barrels; 1927, 2,500 barrels; 1929, estimated, 3,500 barrels; total, 1907-1929, 50,525 barrels.

[L] *Arnold and Kemnitzer* show for Alaska the following data: 1904-1919, estimated, 56,000 barrels; 1920, 11,000 barrels; 1921, 10,000 barrels; 1922-1928, estimated, 73,000 barrels; total, 1904-1928, 150,000 barrels.

[M] From Bureau of Mines final summary on petroleum for 1937.

[N] Bureau of Mines figures for first 11 months; December estimated by The Oil Weekly, with aid of weekly reports of American Petroleum Institute.

1,212,907,000 barrels, or 5.2 percent less than the 1,279,160,000 barrels reported for 1937.

The cumulative output of the United States since the beginning of the industry in 1859 has been 21,186,791,766 barrels, and the value at the wells of all that production has been $25,485,252,168 or $1.20 a barrel on the average.

The 1938 production, at an estimated average price of $1.15 a barrel, had a value of approximately $1,394,843,000. In its final summary for 1937, the Bureau of Mines re-

United States Crude Oil Production, by Fields, 1937, 1938, and Cumulative

The figures given herewith for 1937 and 1938 have been calculated by The OIL WEEKLY from weekly reports of the American Petroleum Institute.

Cumulative production figures, indicating output in all years through 1938, embody data published by The OIL WEEKLY January 25, 1937, beginning page 92. In that issue, tables were presented showing production of all United States fields, by years, back to discovery.

The figures shown here for 1937 and 1938 differ, although only slightly, from those in another table in this issue, entitled, "United States Crude Oil Production, By States, By Years." The differences arise from the fact that table is based on United States Bureau of Mines data, while the figures given here are based on the American Petroleum Institute weekly estimates.

United States Summary

STATE	Year Found	Barrels in 1937	Barrels in 1938	Percent Change 1937-1938	All Year Cumulative
Arkansas	1921	12,136,100	18,338,750	+51	460,275,100
California	1876	238,584,926	249,907,087	+ 5	5,159,473,207
Colorado	1887	1,568,450	1,407,550	—10	36,823,370
Eastern States	1859	45,181,700	58,051,850	+28	2,791,861,980
Kansas	1889	68,405,300	58,784,250	—14	957,081,270
Louisiana	1902	91,307,900	95,204,300	+ 4	862,840,293
North Louisiana	1906	28,610,650	28,327,350	— 1	470,785,809
South Louisiana	1902	62,697,250	66,876,950	+ 7	392,054,493
Michigan	1925	16,189,100	18,975,300	+17	101,744,705
Montana	1916	6,036,200	4,859,500	—19	70,480,489
New Mexico	1924	39,057,100	37,616,200	— 4	199,997,444
Oklahoma	1891	224,000,300	179,208,100	—24	4,434,814,867
Texas	1889	511,381,350	474,706,650	— 7	5,629,918,671
East and East Central Texas	1896	210,383,000	184,367,250	—12	1,731,478,255
North Texas	1902	26,107,100	26,703,250	+ 2	587,006,426
South Texas	1889	86,730,300	82,569,500	— 5	515,341,904
Corpus Christi	1926	46,979,850	45,362,200	— 3	177,715,196
Laredo	1922	30,240,550	28,313,700	— 6	147,096,108
San Antonio	1889	9,599,900	8,893,600	— 6	190,530,600
Texas Gulf Coast	1901	73,938,950	74,195,850	+ 0.3	1,132,100,998
Texas Panhandle	1922	27,801,100	24,009,200	—13	331,134,534
West Texas	1922	74,275,000	72,211,650	— 3	943,262,583
West Central Texas	1914	12,145,900	10,649,950	—12	389,015,813
Unclassified	1903	....	....	....	578,158
Wyoming	1894	19,486,350	19,183,800	— 1	453,467,225
Total United States	1859	1,273,334,776	1,207,243,337	— 5.2	21,158,778,621

Arkansas

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Champagnolle, Union	1928	349,650	.....	12,416,600
El Dorado, Union	1921	725,750	673,200	54,498,750
Rodessa, Miller	1937	1,240,150	2,447,100	3,687,250
Schuler, Union	1937	1,079,950	6,188,850	7,268,800
Smackover, Ouachita-Union	1922	6,915,150	*6,544,800	356,510,050
Unclassified	....	1,825,450	2,484,800	25,893,650
Total Arkansas	1921	12,136,100	18,338,750	460,275,100

* Includes: Light, 740,150; Heavy, 5,804,650.

California

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
San Joaquin Valley:				
Belridge, North Kern	1935	5,721,423	4,843,643	17,182,994
Belridge, South Kern	1935	636,658	440,599	2,725,434
Canfield Ranch, Kern	1938	.....	35,645	35,645
Canal, Kern	1937	34,900	835,669	870,569
Coalinga, Kings	1896	5,791,317	3,878,485	356,343,600
Coles Levee, Kern	1938	.....	9,625	9,625
Edison, Kern	1934	1,582,654	1,102,688	5,822,462
Elk Hills, Kern	1919	3,794,408	3,887,949	146,065,062
Fruitvale, Kern	1928	3,230,733	3,088,542	18,203,112
Greeley, Kern	1937	500,352	1,169,614	1,669,966
Kern River, Kern	1900	5,634,836	4,581,362	316,154,739
Kettleman Hills, Middle Dome, King	1932	49,756	19,467	540,298
Kettleman Hills, North Dome, King	1928	29,085,163	25,567,409	201,971,813
Lost Hills-Belridge, Kern	1910	.....	.....	75,262,082
Lost Hills, Kern	1935	1,433,028	1,297,229	5,836,760
McKittrick, Kern	1898	1,313,735	1,289,113	88,337,199
Midway-Sunset, Kern	1900	26,498,675	22,854,521	855,679,616
Mountain View, Kern	1933	6,834,999	4,028,867	32,670,396
Mt. Poso, Kern	1927	6,694,708	6,232,926	43,450,185
Rio Bravo, Kern	1937	100,139	1,973,220	2,073,359
Round Mountain, Kern	1927	4,813,394	5,467,724	22,160,088
Ten Section, Kern	1936	926,326	2,468,588	3,588,184
Tupman, Kern	1938	.....	3,343	3,343
Wasco, Kern	1938	.....	119,792	119,792
Wheeler Ridge, Kern	1923	118,888	112,913	3,581,017
District total	1896	104,796,092	95,308,933	2,200,357,340
Coastal District:				
Capitan, Santa Barbara	1930	921,049	1,065,896	3,375,546
Elwood Goleta, Santa Barbara	1927	3,206,752	2,243,639	64,450,645
Rincon, Ventura	1927	1,080,826	1,402,448	9,750,676
San Miguelito, Ventura	1931	1,141,331	1,046,267	4,001,248

California—Continued

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Santa Barbara, Santa Barbara	1930	246,888	159,273	3,195,310
Santa Maria-Lompoc, Santa Barbara	1902	3,894,857	6,235,853	144,919,516
Summerland, Santa Barbara	1894	12,439	11,935	3,149,030
Ventura Avenue, Ventura	1926	12,683,504	12,915,791	189,191,033
Ventura County-Newhall	1859	1,839,699	1,911,659	71,115,481
Watsonville	1930	21,990	14,145	192,354
District total	1859	25,049,335	27,006,906	493,340,839
Los Angeles Basin:				
Brea-Olinda (Fullerton), Los Angeles	1897	2,662,488	2,126,279	162,856,211
Coyote, Los Angeles	1912	.....	.....	139,529,702
Coyote East, Los Angeles	1935	1,390,835	1,274,208	4,562,505
Coyote, West, Los Angeles	1935	2,900,983	3,083,998	12,568,067
Dominguez, Los Angeles	1923	9,839,519	9,815,369	107,120,177
El Segundo, Los Angeles	1937	3,616,541	3,890,509	7,507,050
Huntington Beach, Orange	1920	13,284,742	11,928,329	271,330,241
Inglewood, Los Angeles	1924	5,520,889	5,342,500	111,943,896
Lawndale	1930	31,626	28,646	765,694
Long Beach, Los Angeles	1921	21,870,246	20,641,136	619,381,164
Los Angeles-Salt Lake, Los Angeles	1894	250,904	199,015	65,750,250
Montebello, Los Angeles	1917	3,179,359	4,101,260	107,820,857
Newport, Orange	1930	.....	.....	22,525
Playa del Rey, Los Angeles	1929	3,187,618	2,306,439	43,508,843
Portrero, Los Angeles	1927	111,673	208,713	2,483,444
Richfield, Los Angeles	1919	3,139,370	3,348,274	86,456,979
Rosecrans, Los Angeles	1924	1,230,167	3,749,925	36,156,089
Santa Fe Springs, Los Angeles	1921	15,750,438	12,624,698	446,616,140
Seal Beach, Los Angeles	1926	3,414,203	3,201,448	82,263,532
Torrance, Los Angeles	1922	2,840,357	5,191,379	91,084,927
Whittier, Los Angeles	1912	333,761	338,741	17,666,573
Wilmington, Los Angeles	1937	14,183,780	34,190,382	48,374,162
Miscellaneous	1894	.....	.....	.....
District total	1894	108,739,499	127,591,248	2,465,775,028
Total California	1859	238,584,926	249,907,087	5,159,473,207

Colorado

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Florence, Fremont	1887	28,650	.....	13,384,156
Fort Collins and Wellington, Larimer	1924	90,650	111,200	6,866,750
Iles, Moffat	1925	1,038,900	804,900	7,004,450
Moffat, Moffat	1924	151,700	128,500	5,575,100
Price	1937	128,850	177,050	305,900
Unclassified	1909	129,700	185,900	3,687,014
Total Colorado	1887	1,568,450	1,407,550	36,823,370

Eastern States

Pennsylvania Grade:				
Allegany	....	3,667,150	3,372,850	.....
Bradford	....	16,725,600	15,022,100	.....
Kane to Butler	....	3,139,050	3,051,150	.....
Southwestern Pennsylvania	....	982,400	892,250	.....
Southeastern Ohio	1860	1,345,100	1,157,750	.....
West Virginia	1860	3,733,250	3,615,200	.....
Pennsylvania Grade total	1859	29,592,550	27,111,300	.....
New Pools, Southern Illinois	1937	2,342,650	18,929,300	.....
Old Pools, Illinois and Indiana	1889	1,588,050	4,282,500	.....
Others, Eastern	....	11,658,450	7,728,750	.....
Total	1859	45,181,700	58,051,850	*2,791,861,980

* Details by states appear in table on "United States Crude Oil Production by States by Years."

Kansas

Bemis	1937	1,582,000	2,001,550	3,583,550
Bloomer, Barton	1936	1,464,850	895,050	2,528,050
Burrton, Reno	1934	5,187,750	3,695,450	21,834,400
Chase, Rice	1933	2,962,300	1,753,600	14,399,700
Eldorado-Towanda, Butler	1926	3,355,350	3,039,809	56,611,655
Geneseo, Rice	1936	821,550	1,002,700	1,972,600
Graber, McPherson	1936	993,500	991,100	2,151,800
Greenwood County	1922	3,551,300	3,403,800	107,179,720
Hauschild, Rice	1936	851,200	41,150	1,146,250
Hollow-Nikkel, Harvey	1936	1,122,700	1,028,250	3,641,300
Keesling, Rice	1936	615,350	750	1,326,150
Lerado	1937	603,800	388,100	991,900

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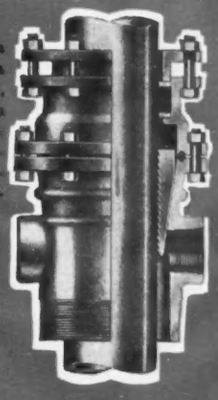
This famous Type "A" American Casing Suspender and Blowout Preventer is designed for extreme heavy duty. Dependable for any high pressure well, regardless of depth and length of string of casing. Tested 5,000 lbs.



The operator desiring a casing suspender for a medium pressure well, will find the American Type "M" Casing Suspender an ideal arrangement. Packing arrangement above slips. Tested 3,000 lbs.

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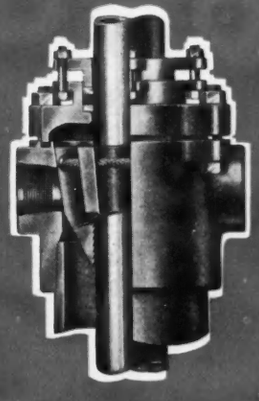
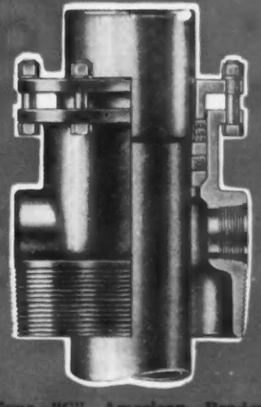


The American Improved Type "MT" Tubing Support is designed to shorten hookups. Has packing arrangement above slips. Ideal for acidizing wells. Tested 3,000 lbs.



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ported that the total value of the production in that year was $1,513,340,000, which indicated an average price of $1.18 for the year.

Although the United States as a whole showed a decrease of 5.2 percent in production in 1938, several states and districts registered increases.

The outstanding increase was that in Illinois, where production of 23,812,000 barrels in 1938 was more than three times as great as that of 7,499,000 barrels in 1937, development of the new, flush fields

United States Crude Oil Production, by Fields, 1937, 1938, and Cumulative—(Cont'd)

Kansas—Continued

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Lorraine, Ellsworth	1935	1,638,400	822,750	6,371,050
Oxford, Sumner	1928	703,000	523,850	12,682,150
Raymond, Rice	1931	718,200	35,550	4,895,050
Ritz-Canton, McPherson	1934	1,980,100	1,814,950	13,952,200
Russell County	1925	11,108,250	9,259,300	44,131,447
Sedgwick County	1928	1,523,000	1,407,450	41,182,200
Silica, Rice	1936	6,373,300	*5,048,550	15,501,150
Steckel-Isern, Barton	1935	.....	.....	.....
Theede	1938	.....	19,950	19,950
Voshell, McPherson	1930	935,550	826,700	22,133,250
Wellington	1937	1,077,600	869,400	1,947,000
Wherry	1938	.....	1,201,550	1,201,550
Unclassified	1889	19,236,250	18,712,950	575,697,198
Total Kansas	1889	68,405,300	58,784,250	957,081,270

* Includes: Silica-South, 762,650; Silica-West, 4,285,900.

North Louisiana

FIELD AND PARISH	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Caddo Parish	1906	2,363,400	*2,362,650	147,912,736
Cotton Valley, Webster	1924	880,050	3,310,850	18,849,500
DeSoto Parish	1914	538,550	108,500	18,246,970
Haynesville, Claiborne	1921	1,164,750	1,097,850	67,515,650
Homer, Claiborne	1919	919,300	948,150	66,838,050
Lisbon	1937	2,275,000	3,236,450	5,511,450
Rodessa, Caddo	1935	17,826,000	13,685,450	51,811,900
Urania, LaSalle-Grant-Winn	1925	1,022,150	1,017,900	22,375,950
Zwolle, Sabine	1929	71,350	478,450	13,470,950
Unclassified	1919	1,550,100	2,081,100	58,252,644
Total North Louisiana	1906	28,610,650	28,327,350	470,785,800

* Includes: Light, 1,458,050; Heavy, 904,600.

South Louisiana

Bayou St. Denis, Jefferson	1935	4,109,600	5,776,350	12,760,452
Big Lake, Black Bayou, Cameron	1929	1,312,200	1,299,250	6,033,197
Bosco, Acadia-St. Landry	1934	3,077,000	2,113,350	17,157,206
Caillou Island, Terrebonne	1930	6,385,000	6,344,250	22,888,704
Cameron Meadows, Cameron	1931	1,502,300	1,276,550	6,191,117
Gillis, Calcasieu	1934	5,154,350	3,186,800	16,224,558
Hackberry Old, Cameron	1928	1,379,450	1,268,650	5,094,967
Hackberry East, Cameron	1927	3,263,450	2,511,450	20,180,982
Iowa, Calcasieu-Jefferson	1931	6,360,200	5,568,350	34,943,725
Jeanerette, St. Mary	1935	2,257,000	2,487,900	5,718,900
Jennings, Acadia	1902	2,827,700	7,397,100	57,702,219
Lake Barre, Terrebonne	1929	1,578,900	676,000	17,209,585
Lake Washington, Plaquemines	1931	270,800	.....	1,919,646
Leesville, La Fourche	1931	3,061,400	1,968,000	20,456,535
Lockport, Calcasieu	1924	520,150	374,950	14,492,019
New Iberia, Iberia	1917	6,192,300	5,285,300	14,424,369
Port Barre, St. Landry	1929	627,050	651,800	7,376,873
Roanoke, Jefferson Davis	1934	1,909,400	1,322,350	7,377,412
Sulphur, Calcasieu	1926	1,431,850	1,239,150	12,575,087
Tepetate, Acadia	1935	2,145,450	2,050,550	5,811,000
Valentine	1937	743,550	1,696,300	2,439,850
Vinton, Calcasieu	1910	502,650	460,850	42,360,334
Unclassified	1936	6,085,500	11,921,700	40,715,756
Total South Louisiana	1902	62,697,250	66,876,950	392,054,493

Michigan

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Unclassified	1925	16,189,100	18,975,300	101,744,705
Total Michigan	1925	16,189,100	18,975,300	101,744,705

Montana

Cat Creek, Petroleum	1920	223,300	212,350	14,512,450
Cut Bank, Glacier	1933	3,531,150	2,755,650	13,023,200
Kevin, Sunburst, Toole	1922	1,675,300	1,280,650	34,546,750
Pondera, Pondera-Teton	1928	453,750	256,950	5,151,900
Others	1916	152,700	353,900	3,246,189
Total Montana	1916	6,036,200	4,859,500	70,480,489

New Mexico

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Artesia, Eddy	1925	233,650	252,800	5,910,384
Cooper, Lea	1934	3,357,650	3,520,950	12,604,771
Eunice, Lea	1928	13,055,300	12,955,600	39,487,101
Hobbs, Lea	1929	7,299,500	5,232,550	86,417,505
Jal, Lea	1928	1,516,950	2,139,550	9,456,164
Lea, Lea	1929	42,200	.....	6,139,304
Maljamar, Lea	1926	1,771,500	1,990,500	6,530,755
Monument, Lea	1935	10,924,300	9,609,700	24,351,007
T. & P. State, Lea	1929	3,700	.....	320,052
Table Mesa, San Juan	1924	368,350	358,400	789,701
Unclassified	1924	484,000	1,556,150	7,990,700
Total New Mexico	1924	39,057,100	37,616,200	199,997,444

Oklahoma

Allen, Pontotoc	1928	2,160,250	2,171,100	43,384,000
Billings	1937	1,597,500	2,121,500	3,719,000
Blackwell, Kay	1921	1,888,150	1,676,500	27,310,750
Bowlegs, Seminole	1927	4,190,150	3,205,550	86,908,900
Bristow-Slick, Creek	1922	2,767,200	2,488,150	132,164,100
Burbank, South, Osage-Kay	1934	5,545,350	3,887,700	20,662,950
Burbank, Osage-Kay	1920	2,869,250	2,746,650	152,840,950
Carr City, Seminole	1929	2,029,450	1,296,650	26,442,800
Chandler, Lincoln	1934	1,136,600	752,000	7,220,100
Crescent, Logan	1933	3,814,050	1,858,200	11,242,000
Cromwell, Seminole	1924	1,234,300	1,162,450	54,082,850
Cushing-Shamrock, Payne, Creek	1914	3,879,650	3,787,650	302,668,924
Dora	1938	.....	1,566,600	1,566,600
Duncan, Stephens	1921	1,432,350	1,432,600	45,508,650
Earlsboro, Seminole	1927	2,279,100	1,797,250	134,233,200
Earlsboro, East Seminole	1930	2,734,000	1,823,950	42,349,700
Earlsboro, South Seminole	1930	261,100	187,250	7,424,200
Edmond, Oklahoma	1935	6,528,950	2,224,000	14,536,550
Fish, Hughes-Seminole	1932	2,265,250	1,259,350	13,689,550
Fitts, Pontotoc	1934	31,233,100	17,145,950	75,140,800
Graham, Carter	1924	1,665,750	1,666,450	30,147,400
Gray, Pottawatomie	1934	458,300	350,100	2,825,550
Healdton, Carter	1914	3,617,400	3,286,550	164,827,677
Hewitt, Carter	1921	1,587,200	1,388,750	77,337,850
Jesse	....	1,201,850	1,077,200	2,279,050
Keokuk, Seminole-Pottawatomie	1933	3,081,400	1,804,650	8,551,900
Konawa, Seminole	1930	597,250	486,950	14,626,400
Little River, Seminole	1927	3,926,100	2,725,450	111,144,900
Little River East, Seminole	1930	412,800	320,950	10,209,550
Lucien, Noble Logan	1933	5,171,900	3,473,050	20,518,050
Mission, Wagoner	1929	772,200	560,750	23,878,250
Moore, Cleveland	1936	3,949,800	1,973,600	6,238,050
Oklahoma City, Oklahoma	1929	54,527,500	38,938,900	439,324,750
Olympic	1936	4,573,650	1,997,050	8,962,450
Osage (Outside Burbank), Osage	1903	7,701,750	6,538,650	356,330,446
Polo, Noble	1935	460,650	37,800	2,712,850
Ramsey	1938	.....	498,050	498,050
Sasakwa, Seminole	1929	748,800	553,200	9,193,150
Sasakwa Townsite, Seminole	1933	244,000	30,350	1,860,950
St. Louis-Pearson, Pottawatomie	1932	7,663,450	7,602,650	55,143,100
Sholem-Alechem, Carter-Stephens	1926	1,151,250	980,200	36,843,000
Searight, Seminole	1927	1,646,050	1,074,150	25,421,650
Seminole, Seminole	1926	3,474,700	2,823,100	158,472,900
Seminole East, Seminole	1929	1,082,550	612,100	7,350,300
Tatums, Carter	1932	1,913,600	1,384,800	12,494,500
Tonkawa-Garber-Thomas, Kay Garfield-Noble	1933	2,235,050	1,552,550	11,419,550
Wewoka, Seminole	1923	1,165,450	845,850	48,120,650
Yale-Jennings, Payne-Pawnee-Creek	1921	1,515,650	1,375,900	56,462,750
Unclassified	1891	27,608,500	29,657,300	1,528,522,570
Total Oklahoma	1891	224,000,300	170,208,100	4,434,814,867

East and East Central Texas

Cayuga, Anderson-Freestone-Henderson	1934	3,207,650	3,147,550	10,411,264
East Texas Field—5 Counties	1930	168,730,250	149,986,350	1,281,225,820
Mexia, Limestone	1918	709,100	648,000	95,927,414
Powell, Navarro	1896	947,350	858,600	118,874,687
Rodessa, Cass	....	12,948,800	11,539,150	27,506,760
Sulphur Bluff, Hopkins	1937	1,490,150	1,639,200	3,129,350
Talco Titus-Franklin	1936	10,178,250	9,451,000	20,840,750
Van, Van Zandt	1929	11,146,100	5,688,100	116,390,820
Unclassified	....	1,025,350	1,319,300	57,171,390
Total East and East Central Texas	1896	210,383,000	184,367,250	1,731,478,255

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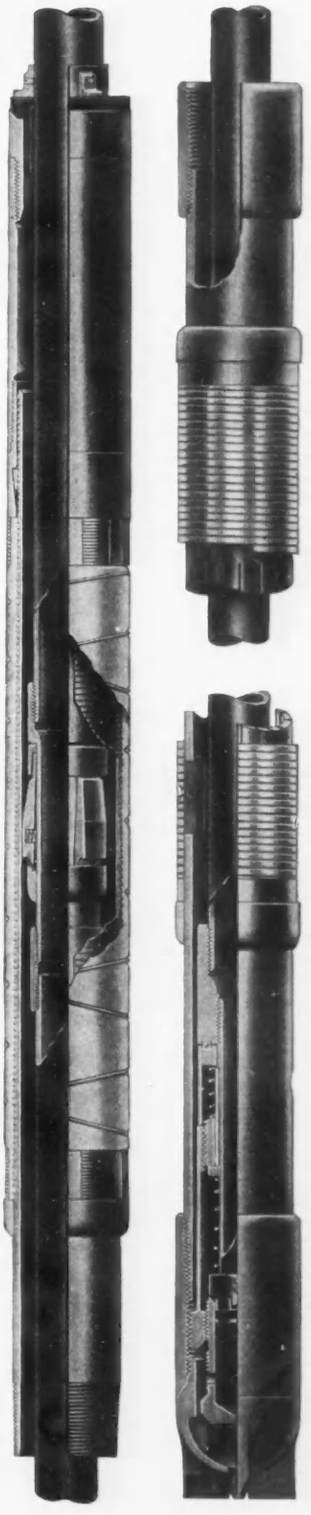
Saves you from having to make a round trip to recover setting tool.

Employed where tubing is used as a casing string, a recommended practice for wells produced under small allowables. The setting tool remains in the hole until the well stops flowing, or it becomes necessary to remove the flow string from the well. **Positive shut-off** from a rotatable back pressure valve. **Sure and easy release** by use of screw-through principle developed and perfected by T-I-W.



TEXAS IRON WORKS

1401-1423 MAURY ST. HOUSTON, TEXAS

of the state having been aggressive. The discoveries in Illinois meanwhile encouraged development in the adjoining states of Indiana and Kentucky, which consequently showed small increases in production.

The second largest increase, from a percentage standpoint, was that of approximately 50 percent in Arkansas, where production rose to 18,066,000 barrels in 1938, from 11,764,000 barrels the previous year.

California's output of 249,906,000 barrels in 1938 was 5 percent larger than that of 238,521,000 barrels in 1937, the state having experienced important over-production.

Louisiana production was up 4 percent in 1938, to 94,928,000 barrels, also a new high, as a slight decline in the northern part of the state was more than offset by a 7 percent increase in the coastal section.

United States Crude Oil Production, by Fields, 1937, 1938, and Cumulative—(Cont.)

Texas Gulf Coast

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Amelia, Jefferson	1936	.....	1,288,050	1,288,050
Anahuac, Chambers	1935	4,327,350	2,879,150	10,159,739
Barbers Hill, Chambers	1916	4,430,100	3,537,900	63,572,585
Batson, Hardin	1903	657,500	642,100	38,524,384
Conroe, Montgomery	1931	15,404,550	11,883,050	99,404,631
Dickinson, Galveston	1934	1,644,400	2,494,050	5,307,065
Goose Creek, Harris	1908	883,900	605,600	70,600,972
Hankamer, Liberty	1929	583,300	.....	4,921,697
Hastings, Brazoria	1934	5,729,850	7,053,400	15,783,357
High Island, Galveston	1922	1,302,000	684,350	14,915,318
Hull, Liberty	1918	2,533,850	3,043,600	84,209,312
Humble, Harris	1904	1,252,950	1,239,150	121,271,374
Livingston, Polk	1930	989,700	701,250	5,007,580
Manvel, Brazoria	1931	3,412,250	3,391,200	14,136,758
Mykawa, Harris	1929	714,750	485,300	3,525,220
Pickette Ridge, Wharton	1935	728,850	603,800	1,967,486
Pierce Junction, Harris	1921	1,259,750	1,200,400	32,084,943
Raccoon Bend, Austin-Waller	1927	2,013,950	1,204,700	20,382,297
South Houston, Harris	1935	1,962,900	1,173,400	4,368,238
Spindle Top, Jefferson	1901	900,050	773,450	123,899,422
Sugarland, Fort Bend	1928	1,331,600	1,222,650	27,422,207
Thomrson, Fort Bend	1931	4,152,800	3,979,600	29,969,953
Tomball, Harris, Montgomery	1933	3,039,250	2,535,950	11,290,877
West Columbia, Brazoria	1902	837,950	1,597,650	75,220,773
Unclassified	1936	13,845,400	19,976,100	252,866,760
Total	1901	73,938,950	74,195,850	1,132,100,998

Texas Panhandle

COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Carson	1923	2,563,350	2,318,750	6,833,750
Gray	1925	13,243,650	11,115,950	35,240,500
Hutchinson	1922	7,641,350	7,807,950	21,000,850
Moore	1927	495,600	455,600	1,435,200
Wheeler	1925	3,857,150	2,310,950	9,775,550
Unclassified	....	.....	.....	256,848,684
Total Texas Panhandle	1922	27,801,100	24,009,200	331,134,534

North Texas

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Archer County, Holliday	1913	4,763,350	3,794,350	113,443,788
Baylor County	1925	665,600	42,100	3,708,230
Burkburnett, Wichita	1912	1,903,400	1,826,600	150,376,727
Electra, Wichita	1911	3,397,750	3,067,500	133,277,389
Jack County	1902	2,902,150	2,555,250	11,987,385
K-M-A-Iowa Park, Wichita-Archer	1913	1,083,700	*5,098,350	27,853,865
Montague County	1902	4,821,550	3,714,600	32,367,831
Wilbarger County	1924	3,198,300	2,918,500	64,943,798
Unclassified	1936	498,250	1,156,950	18,297,907
Young County, North Half	1926	2,873,050	2,529,050	30,749,506
Total North Texas	1902	26,107,100	26,703,250	587,006,426

* Includes: Deep, 4,617,100; Shallow, 481,250.

South Texas, Corpus Christi Area

Dirks, Bee	1934	1,259,650	.....	3,181,491
Flour Bluff, Nueces	1936	.....	1,756,100	1,756,100
Greta, Refugio	1933	4,610,800	2,602,400	22,475,491
Heyser, Calhoun-Victoria	1936	.....	3,094,300	3,094,300
Pettus, Bee	1930	1,340,550	.....	11,895,795
Placedo, Victoria	1935	3,041,450	3,007,050	7,314,590
Plymouth, San Patricio	1935	4,932,700	4,438,350	12,793,735
Refugio, Unclassified	1936	2,187,150	1,930,650	5,927,700
Saxet, Nueces	1930	13,480,300	*11,959,650	33,411,038
Saxet Heights, Nueces	1935	3,213,450	1,141,600	6,324,720
Tomcconnor, Refugio	1934	4,434,600	4,388,950	10,180,852
Unclassified	1926	8,479,200	11,043,150	59,359,384
Total South Texas, Corpus Christi Area	1926	46,979,850	45,362,200	177,715,196

* Includes: Light, 6,116,000; Heavy, 5,843,050.

South Texas, Laredo Area

FIELD AND COUNTY	Year Found	Barrels in 1937	Barrels in 1938	All Years Cumulative
Government Wells, Duval	1928	5,733,750	4,077,350	36,691,416
Loma Novio, Duval	1934	6,480,400	4,630,100	15,745,144
Lopez, Duval	1935	3,108,650	2,208,150	5,793,637
North Sweden, Duval	1938	.....	3,069,850	3,069,850
O'Hern, Webb	1938	.....	1,761,550	1,761,550
Seven Sisters, Duval	1935	3,646,700	2,847,450	7,963,659
Unclassified	1922	11,271,050	9,719,250	76,070,852
Total South Texas, Laredo Area	1922	30,240,550	28,313,700	147,096,108

South Texas, San Antonio Area

Branyon, Caldwell	1928	659,800	143,100	883,551
Darst Creek-Manford, Guadalupe	1929	2,665,750	2,572,400	45,631,665
Luling, Caldwell	1922	2,250,600	2,510,550	69,031,920
Salt Flat, Caldwell	1928	1,623,400	1,520,350	37,991,066
Unclassified	1889	2,310,350	2,147,200	36,992,398
Total South Texas, San Antonio Area	1889	9,509,900	8,893,600	190,530,600

West Texas

Andrews	1936	1,256,300	1,305,850	3,420,650
Crane-Upton	1936	11,052,750	11,695,800	31,257,850
Ector	1936	8,776,900	13,587,750	27,360,100
Howard, Glasscock	1926	5,825,800	5,480,200	85,104,356
Iatan, East Howard, Mitchell Co.	1936	2,604,650	2,332,550	7,290,050
Reagan	1936	2,729,500	2,349,250	8,040,550
Ward	1928	12,368,000	8,658,450	46,671,946
Winkler	1926	15,355,550	13,740,750	210,798,078
Yates Field, Pecos-Crockett Cos.	1926	10,633,500	6,727,150	239,315,553
Rest of Pecos Co.	1937	1,856,250	2,025,600	3,881,850
Unclassified	1922	1,815,800	4,308,300	280,121,600
Total West Texas	1922	74,275,000	72,211,650	943,262,583

West Central Texas

Brownwood, Brown	1902	635,750	564,150	29,238,288
Desdemona, Eastland Erath-Commanche	1918	1,083,650	994,350	31,568,639
Stephens, Fisher	1928	1,289,400	1,196,000	11,705,628
Jones, Stebbins-Swann-Nugent-Hawley	1926	2,239,350	2,065,900	10,722,812
Shackleford, Moran and Other Fields	1902	2,653,400	2,126,000	35,408,512
Stephens, Breckenridge	1916	1,525,550	1,341,000	131,709,466
Young, South Half	1917	1,423,600	1,245,550	33,226,010
Unclassified	1914	1,295,200	1,117,000	105,436,458
Total West Central Texas	1914	12,145,900	10,649,950	389,015,813

Wyoming

Big Muddy, Converse, Natrona	1894	506,550	447,350	25,800,458
Elk Basin, Park	1894	37,000	.....	10,104,488
Garland, Big Horn	1932	717,150	846,650	2,487,800
Grass Creek, Hot Springs	1915	659,100	*196,550	26,625,537
La Barge, Lincoln Sublette	1926	369,050	343,250	5,721,500
Lance Creek, Niobrara	1919	4,226,350	4,913,900	16,040,200
Lost Soldier Ferris, Sweetwater Carbon	1919	88,350	.....	18,732,800
Medicine Bow	1937	1,149,050	1,138,550	2,287,600
Oregon Basin, Park	1928	1,454,000	991,050	9,817,100
Rock Creek, Carbon	1919	743,250	651,900	18,010,150
Salt Creek, Natrona	1894	5,907,100	5,715,400	279,040,363
Unclassified	1894	3,629,400	3,939,200	38,799,229
Total Wyoming	1894	19,486,350	19,183,800	453,467,225

* Includes: Light, 3,700; Heavy, 192,850.

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Photograph below was taken at a well south of St. Louis, Okla., drilled by Hissom Drilling Co., of Tulsa. Left to right, the men are: W. B. Hissom, contractor; L. P. Nixon, Union Wire Rope Corp.; A. M. Ballard and Dan Wallace, lease owners; A. W. Tillotson, geologist; W. H. Pratt, floor man; Buddy Sexton, derrick man; George Larkin, engine man; H. L. Eley, driller; Dave Evans, tool pusher; Charles Johnson and J. B. Blankenship, Jarecki Mfg. Co.

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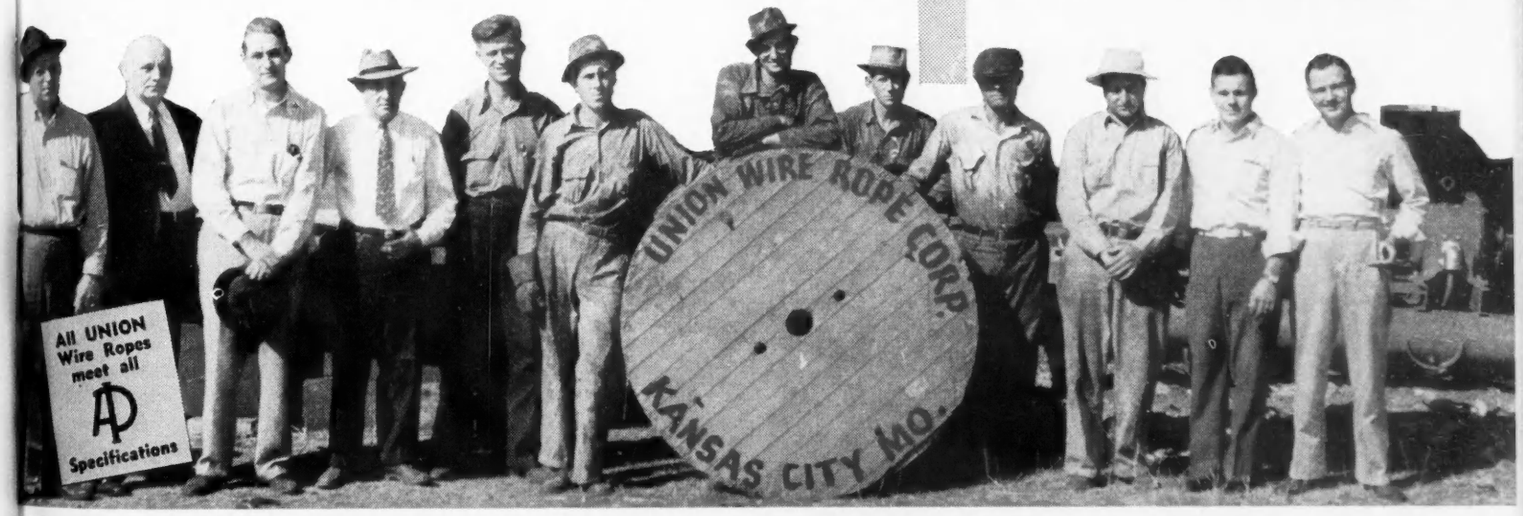


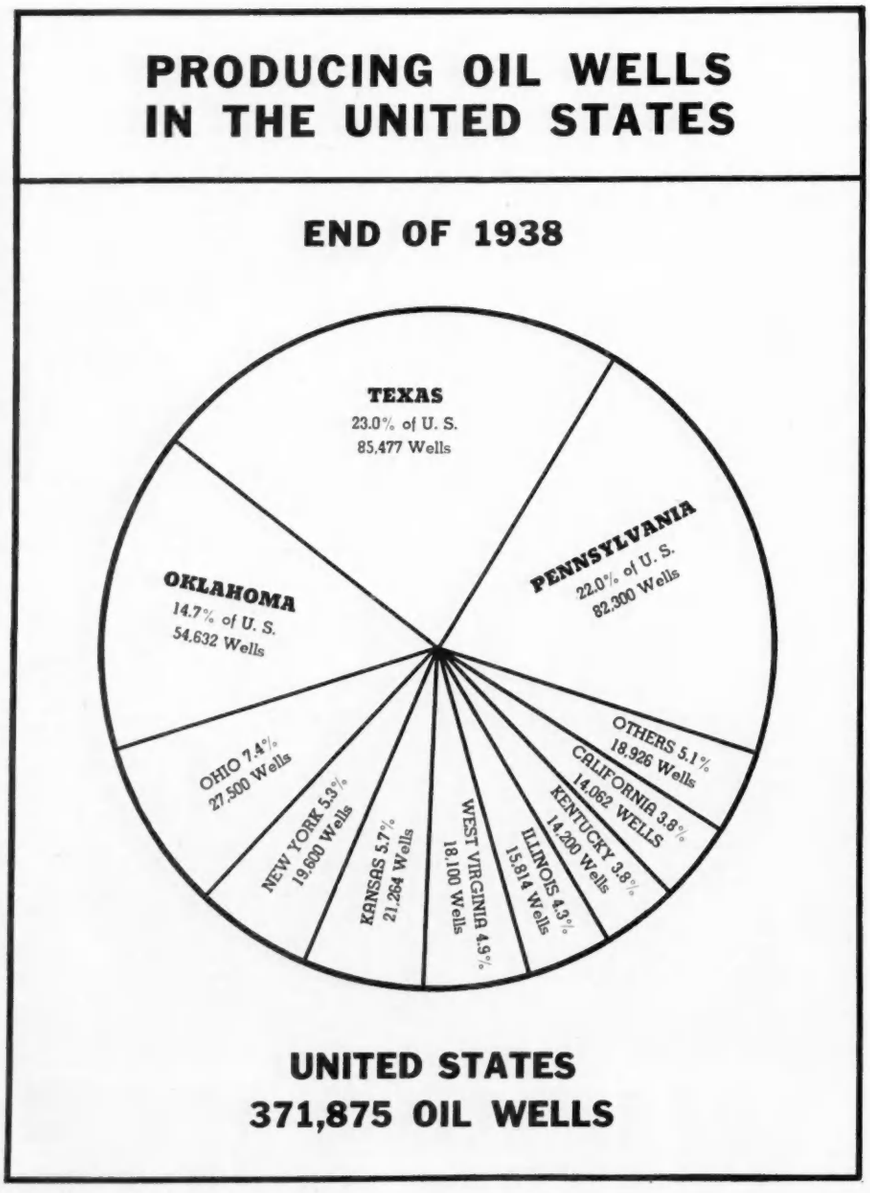
UNION WIRE LINES

The "ULTIMATE LOW COST WIRE ROPE"

Oil Wells at New Peak and Gain in 1939 Probable

Number of producing oil wells in United States reaches new high of 371,875 at close of 1938, as increasing trend of recent years continues.

By L. J. LOGAN, Associate Editor



THE number of producing oil wells in the United States is fairly certain to increase steadily into new high ground in 1939, after having stood at an all time peak of 371,875 at the end of 1938.

The wells on production have been steadily increasing since 1931, when the East Texas boom and the major depression of that time demoralized the oil industry's markets, greatly depressed crude prices, and forced premature abandonment of many wells. And the increasing trend doubtlessly will be continued this year, as satisfactory crude prices and relatively numerous completions of new wells are in prospect.

Prices Control Abandonments

Fluctuations in the number of producing wells are determined primarily by the prevailing prices of crude oil, as evidenced by the record for 1931. An average crude price of 65 cents a barrel in that year resulted in a decrease of 15,000 in the number of producing oil wells in the country. The total stood at 331,070 wells at the end of 1930, but it had declined to only 315,850 wells at the end of 1931, despite the completion of 6618 oil wells during the year. With normal crude prices prevailing, that number of oil well completions would have assured a net increase of several thousand producing wells within the year. Consequently, the low prices of 1931 forced 21,838 wells off production.

Subsequently, crude oil prices have been more favorable, the trend of the prices has been upward, completions also have been usually increasing, and each year has brought an

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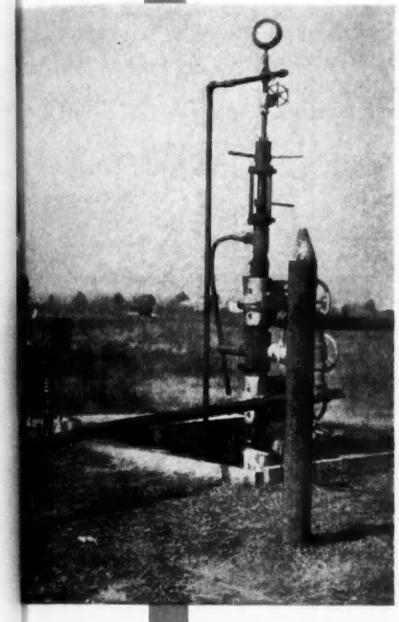

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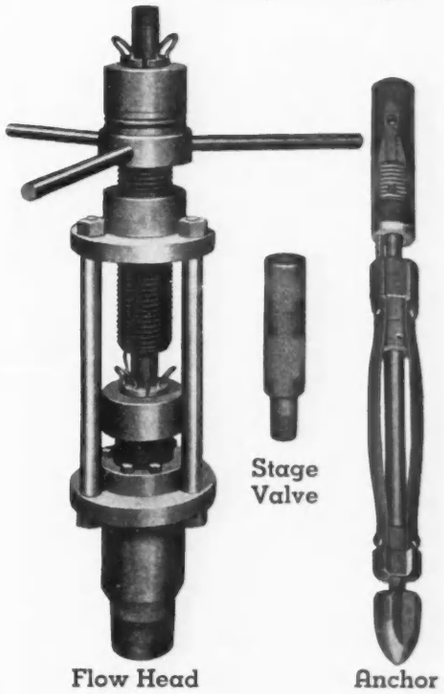

NOT NECESSARY TO DISMANTLE CHRISTMAS TREE . . . TUBING DOES NOT HAVE TO BE PULLED

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addition to the number of wells on production.

The relationship of crude prices to the number of producing wells, completions, and abandonments in the past seven years is shown in an accompanying table.

The average crude price in the United States recovered from 65 cents a barrel in 1931 to 87 cents in 1932; and in contrast with the decrease of 15,000 in the number of producing wells in 1931, there was an increase of 5650 in 1932, although oil well completions increased only from the 6618 of 1931 to 10,151 in 1932. In contrast with the indicated abandonment of 21,838 wells in 1931, therefore, only 4501 wells dropped off the producing list in 1932.

In later years, still better crude prices promoted even more completions and an accelerated increase in producing wells.

Crude Prices Affect Number of Producing Oil Wells in U. S. by Controlling Completions and Abandonments

YEAR	Average Crude Oil Price per Barrel	Net Increase in Producing Oil Wells	Oil Well Completions	Indicated Oil Well Abandonments
1932	$0.87	5,650	10,151	4,501
1933	.67	5,350	7,681	2,331
1934	1.00	6,220	12,959	6,739
1935	.96	7,920	15,389	7,469
1936	1.09	8,460	18,937	10,477
1937	1.18	13,580	22,689	9,109
1938	*1.15	8,845	18,963	10,118
Total for 7 years	†$0.99	56,025	106,769	50,744
Yearly average for period	.99	8,003	15,253	7,249

* Estimated. † Average for period.

Average Lower In 1938

In 1938 the average price of crude oil was approximately $1.15 a barrel, having declined from $1.18 in 1937; and producing oil wells increased 8845 in 1938, in comparison with a gain of 13,580 in the previous year; while oil well completions were down to 18,963 from 22,689 in 1937. These figures indicate that abandonments of producing oil wells increased to 10,118 in 1938 from 9109 in 1937.

Well Increase

The number of producing oil wells in the United States, having stood at 371,875 at the end of 1938, increased 56,025 in the seven years, 1932-1938. In that period, there was, consequently, an average annual increase of 8003 in the number of producing oil wells; and crude oil prices averaged 99 cents a barrel. Meanwhile, completions of new oil wells averaged 15,253 annually, 106,769 wells having been finished in the whole period; and indicated abandonments averaged 7249 annually, having totaled 50,744 in the seven years.

Producing Oil Wells at End of 1938 Most on Record

Table shows approximate number of producing oil wells at end of year, by states, and average daily production per well, in barrels. Source: Bureau of Mines.

END OF YEAR	ARKANSAS		CALIFORNIA		COLORADO		ILLINOIS		INDIANA		KANSAS		KENTUCKY		LOUISIANA		MICHIGAN		MONTANA	
	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	550	72.0	9,980	32.0	80	3.2	16,650	1.5	2,600	1.1	17,200	5.1	9,200	2.7	3,000	26.7	.....	.....	90	56.6
1922	964	54.6	8,916	55.3	75	3.2	16,725	1.4	2,550	1.1	17,900	4.4	10,600	2.1	3,500	23.6	.....	.....	150	52.0
1923	1,970	46.0	9,396	74.9	60	3.8	16,674	1.3	2,300	1.1	17,750	4.2	11,700	1.7	3,630	15.8	.....	.....	280	20.5
1924	3,050	33.5	11,320	53.6	70	25.8	16,400	1.2	2,140	1.0	12,450	4.0	12,450	1.5	3,550	15.0	.....	.....	380	18.9
1925	4,100	49.5	11,070	56.6	80	64.1	16,280	1.3	2,000	1.0	18,600	5.6	13,100	1.3	3,750	14.4	A	A	590	21.1
1926	4,500	29.6	11,330	58.1	130	60.3	16,270	1.3	2,050	1.1	19,230	6.0	13,300	1.3	4,190	14.9	90	9.3	830	14.3
1927	4,550	24.2	11,280	55.9	170	51.7	16,240	1.2	2,060	1.1	19,600	5.8	13,500	1.4	4,250	14.8	300	6.2	980	15.3
1928	4,520	19.3	10,710	57.6	210	39.9	16,340	1.1	2,040	1.4	19,800	5.4	13,740	1.5	3,820	14.8	400	4.6	1,100	10.5
1929	3,900	16.2	10,520	75.5	220	30.0	16,000	1.1	1,950	1.3	20,080	5.9	14,650	1.5	3,780	14.8	500	27.6	1,299	9.1
1930	3,850	13.9	9,450	62.4	240	19.7	15,800	1.0	1,740	1.5	20,120	5.7	14,400	1.4	3,930	16.5	640	18.8	1,410	6.8
1931	3,280	11.4	8,910	56.4	200	19.2	15,540	.9	1,650	1.4	19,120	5.2	12,420	1.3	3,190	16.8	630	16.3	1,420	5.5
1932	2,880	10.7	8,900	54.7	190	15.9	15,170	.8	1,505	1.4	18,300	5.1	13,510	1.3	3,050	19.1	645	29.6	1,420	4.7
1933	2,890	11.1	10,990	47.4	190	13.3	14,930	.8	1,220	1.5	18,500	6.3	14,100	.9	3,200	22.1	830	29.5	1,440	4.4
1934	2,800	10.8	11,750	42.0	190	16.4	14,630	.8	1,230	1.9	18,550	6.9	13,900	1.0	3,140	28.4	980	32.1	1,400	7.0
1935	2,680	11.1	12,780	46.4	200	21.9	14,330	.8	1,220	1.7	19,250	7.9	13,800	1.0	3,400	42.2	1,160	40.4	1,650	8.3
1936	2,670	10.7	12,230	46.9	210	22.0	14,100	.9	1,230	1.8	19,800	8.2	13,600	1.1	3,800	61.1	1,360	25.9	1,470	10.3
1937	2,670	12.1	13,460	50.9	200	21.4	14,110	1.5	1,240	1.9	21,850	9.3	13,700	1.1	4,160	62.6	1,780	29.0	1,600	10.4
1938[F]	2,923	17.0	14,062	43.7	186	21.2	15,814	8.7	1,108	2.5	21,264	7.0	14,200	1.2	4,998	50.9	2,135	21.6	1,605	7.7

END OF YEAR	NEW MEXICO		NEW YORK		OHIO		OKLAHOMA		PENNSYLVANIA		TEXAS		WEST VIRGINIA		WYOMING		OTHERS		UNITED STATES	
	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	.....	.....	13,500	.2	37,000	.5	56,200	5.5	73,700	.3	13,300	23.2	20,000	1.1	1,450	443.3	.....	.....	274,500	4.9
1922	.....	.....	14,300	.2	39,300	.5	57,500	7.5	75,000	.3	14,450	18.0	20,200	.9	1,750	53.6	.....	.....	284,880	5.7
1923	.....	.....	14,640	.3	39,550	.5	57,500	6.9	74,000	.3	18,250	19.3	20,100	.8	2,300	59.7	B	B	290,100	6.6
1924	A	.....	15,000	.3	38,900	.5	60,500	8.1	74,350	.3	20,350	17.2	20,000	.8	2,570	26.9	C 70	.....	299,100	6.2
1925	140	32.3	15,580	.3	39,060	.5	59,400	7.7	75,900	.3	23,400	14.7	19,940	.8	3,080	24.8	D 30	.....	306,100	6.5
1926	230	24.7	16,150	.4	39,250	.5	61,600	9.3	76,800	.3	29,030	20.0	20,150	.8	3,400	17.3	E 70	.....	318,600	6.8
1927	250	14.0	16,740	.4	37,600	.5	61,750	10.3	78,480	.3	32,000	19.5	19,900	.8	3,560	16.8	90	.....	323,300	7.7
1928	260	10.1	16,500	.4	37,900	.5	62,900	11.0	78,600	.3	35,750	20.8	19,600	.8	3,520	16.6	90	.....	327,800	7.6
1929	270	18.9	16,800	.6	37,210	.5	61,180	11.3	80,320	.4	36,280	22.6	19,650	.8	3,530	15.0	70	.....	328,200	8.4
1930	460	76.5	17,100	.6	36,530	.5	63,600	9.5	80,560	.4	38,060	21.4	19,600	.7	3,520	13.9	60	.....	331,070	7.5
1931	430	93.7	17,600	.5	34,800	.4	56,720	8.2	79,930	.4	37,650	24.1	18,900	.6	3,410	11.7	40	.....	315,850	7.2
1932	490	74.0	17,680	.5	34,530	.4	57,100	7.4	80,380	.4	43,630	21.0	18,850	.6	3,200	11.1	70	.....	321,500	6.7
1933	540	75.1	18,270	.5	33,600	.3	56,850	8.3	78,720	.4	48,100	24.0	19,000	.6	3,400	9.3	80	.....	326,850	7.7
1934	640	78.3	19,330	.6	32,650	.4	56,650	8.7	80,200	.5	52,300	20.8	19,200	.6	3,410	10.1	120	.....	333,070	7.5
1935	840	75.8	19,600	.6	32,100	.3	54,600	9.1	82,050	.5	59,110	19.3	18,710	.6	3,380	11.1	130	.....	340,990	8.1
1936	1,250	71.2	19,950	.6	30,950	.3	54,800	10.3	82,950	.6	66,920	18.5	18,600	.6	3,420	11.7	140	.....	349,450	8.7
1937	1,920	67.2	19,900	.8	28,500	.3	55,900	11.3	82,800	.6	77,360	19.4	18,400	.6	3,350	15.5	130	.....	363,030	9.8
1938[F]	2,321	42.5	19,600	.7	27,500	.3	54,632	7.7	82,300	.5	85,477	14.8	18,100	.4	3,530	13.2	120	.....	371,875	8.6

[A] Included under "Others." [B] Figures not available. [C] Alaska, New Mexico, Tennessee and Utah. [D] Alaska, Michigan, Tennessee and Utah. [E] Alaska, Tennessee and Utah. [F] Estimated by The OIL WEEKLY with aid of state officials and others.

Increasing Number Of New Fields Continue To Be Found In United States

Discovery rates for both new fields and new sands in old fields reach an all-time peak, as 264 fields and 160 producing zones are found during the year

THE United States again experienced a remarkably large increase in number of new producing areas discovered during 1938, further indicating that its oil possibilities have not been depleted, and that 1939 should see a continuation of this trend if operators care to drill prospective acreage.

There were a total of 424 new fields and producing horizons in previously located pools opened during 1938. This represented an increase of 64 from the 360 total established in the preceding year, and nearly doubled the 223 discoveries made in 1936.

Of importance was that the number of new producing structures found accounted for the majority of the strikes. There were 264 fields proven productive last year, in contrast with 224 in the preceding 12 months and 165 during 1936.

This sizeable growth is an indication that the nation still may be expected to yield many as yet unlocated producing structures in the future, for fields will become harder to find at a gradual rate.

The number of sands in old fields that gave up their first oil also increased, there being 160 such discoveries. The year 1937 saw 136 new producing horizons proven, while 1936 recorded but 58.

Less Gain in Depth

Although the average depth of these discoveries was slightly greater than in 1937, the gain was not nearly as large as in the preceding year. In 1938 the average depth of all discovery wells (including those of sands in already proven fields) was 4039 feet. The depth in 1937 was 4005 feet, while 1936 averaged 3694 feet.

The lesser rate of depth increase may be attributed to the North Central States (Michigan, Illinois, Indiana and Kentucky), which have entered the discovery picture in big style, and which have shallower depths than the average of the nation. Outside of these states, the drilling of wells to ever increasing depths is largely responsible for the larger number of discoveries.

The four North Central or Middle West states had a combined discovery total of 55 new fields and 4 producing horizons during 1938, whereas they accounted for but 16 new fields and 2 sands in 1937. A comparison with 1936 further emphasizes the "comeback" experienced by these states, as they had but 14 new fields discovered in 1936 and only 1 new production strata in an old pool.

Texas Still Leads

Figures for discoveries and depths are set out in accompanying table, in which the data are broken down into districts.

It will be noted that Texas accounted for nearly half of the 264 new producing structures found, having 113. This is the same story told in 1937, when this state had 104 of the 224 fields discovered.

Texas accounted for the majority of sands proven productive in established fields, having 94 of the 160.

Although its number of discoveries continued to decline, Kansas

More New Fields Found in United States During 1938 Than in 1937

AREA	Number New Fields Found			Number New Sands in Old Fields			Average Depth of Strikes*		
	1938	1937	1936	1938	1937	1936	1938	1937	1936
Arkansas	4	3	1	...	2	...	6207	6822	4900
California	8	6	7	5	2	...	7489	7975	5950
Illinois	16	8	1	...	2	...	2590	2633	1037
Kentucky	3	2	1	1	...	1	1588	1385	1362
Kansas	43	52	71	7	5	1	3396	3293	3325
Indiana	5	1	...	1	...	...	1708	2174	....
Louisiana	20	19	5	47	19	13	7185	6521	6087
North Louisiana	1	4	...	3	1	1	6969	5645	5175
Louisiana Coast	19	15	5	44	18	12	7400	7398	6998
Michigan	19	5	12	2	...	...	2099	2970	2553
New Mexico	7	3	...	...	...	...	3101	2605	....
Oklahoma	18	18	...	1	4	2	4720	4177	4165
Rocky Mountains	8	3	3	2	2	2	3623	3473	3721
Texas	113	104	64	94	100	39	4303	4039	3842
East Texas	4	4	3	3	1	...	5689	5547	4915
North Texas	19	20	8	10	10	2	3190	2596	1811
Gulf Coast	10	15	16	16	18	7	6921	6741	5970
South Texas	49	41	22	60	67	30	4631	4175	4061
West Texas	12	17	9	...	...	...	3823	3498	3877
Panhandle	2	1	...	...	2	...	3126	3164	....
West Central Texas	17	6	6	5	2	...	2746	2555	2416
Total	264	224	165	160	136	58	4039	4005	3694

* Depth of discovery wells.

was still second in volume of new fields, registering 43 during the 12 months. This was in contrast with 52 in 1937 and 71 in 1936.

Illinois Attracts More Interest

The Basin area of Illinois continued its rampage, and furnished the state with an even more imposing discovery list than in 1937.

From about 1905 until 1937, Illinois was considered a "has been" area. The latter year saw the finding of 8 important fields, which resulted in an active drilling campaign. The past 12 months furnished 16 new fields, and many of the 1937 discoveries were extended materially.

The majority of the state's new producing fields were in the Mc-

Sixteen New Fields Found in Illinois in 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
North Olney	Richland	Pyramid Oil Co.'s University of Chicago 1, NW NW NW 26-4n-10e	McClosky	3030–36	1000	....	Field
Dix	Jefferson	Carter Oil Co.'s Tate 1, C W½ NW NE 10-1s-2e	Bethel	1980–90	58	....	Field
Aden	Wayne	The Texas Co.'s Silverman 1, C E½ SW NW 16-3s-7e	McClosky	3276–87	385	....	Field
North Aden	Wayne	H. H. Weinert, Inc., Twist 1, NE NW SW 33-2s-7e	McClosky	3308–25	400	....	Field
Flora	Clay	Kingwood Oil Co.'s Graham 1, C S½ SW NE 13-3n-6e	McClosky	2973–83	275	....	Field
Flora	Clay	Ohio Oil Co.'s Hardy 1, NW SE SE 9-3n-7e	McClosky	2958–67	459	....	Extension
Schnell	Richland	Wicklund Development Co.'s McCauley 1-B, NE SW NW 7-2n-9e	McClosky	2980–96	1053	....	Field
Lake Centralia-Salem	Marion	The Texas Co.'s Tate 1, NW NW 5-1n-2e	Bethel	1692–1810	732	....	Field
Ina	Jefferson	Nollem Oil & Gas Co.'s and Benoist-Kelley's 1, NE NW NE 25-4s-2e	St. Louis	3002–07	200	....	Field
St. James	Fayette	Rosenthal et al's Washburn 1, NE SE NW 30-6n-3e	Cypress	1600–22	188	....	Field
Leech Twp.	Wayne	Iroquois Oil & Gas Co.'s Walker 1, C NW¼ NW NW 16-3s-9e	McClosky	3428–38	150	....	Field
Roaches	Jefferson	Magnolia Petroleum Co.'s Harvey 1, NW NE SW 22-2s-1e	McClosky	2239–63	217	....	Field
Elk Prairie	Jefferson	Benedum-Trees, Jefferson Oil & Gas 1, C NW¼ NE 16-4s-2e	McClosky	2718–51	25	....	Field
Boyleston	Wayne	Roche and Boyles-McPherson 1, C S½ SE NE 4-2s-7e	McClosky	3253–69	400	....	Field
North Nobel	Richland	Pure Oil Co.'s Wakefield 1, C W½ NW NE 26-4n-9e	Cypress	2564–83	514	....	Extension
West Clay City	Clay	Wiser Oil Co.'s Irwin 1, C N½ SE NW 12-2n-7e	McClosky	3060–76	273	....	Extension
Russellville	Lawrence	Kesl et al's Gray 1, C N½ NW NE 13-4n-11w	Buchanan	1060–61	2½ M. gas	....	Field
Sorento	Bond	De Mayo et al's Dressor 1, 21-6n-4w	Niagaran	1800–30	15	....	Field
Marcoe	Jefferson	Magnolia Petroleum Co.'s J. W. Dare 1, SE SW NE 22-3s-2e	McClosky	2746–65	237	....	Field

Data from Illinois Geological Survey.

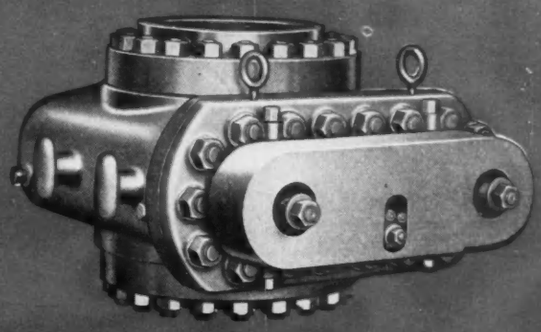
BE SAFELY CONTROLLED

Another recent addition to the line of Shaffer High Pressure Control Equipment is the Shaffer Type 38 Cellar Control Gate which incorporates many features of safety and of operating convenience.

In addition to possessing all the advantages of the Type 34 Gates, Shaffer Type 38 Cellar Control Gates effect a seal against both the top and the bottom inside face of the gate, as well as around the pipe. When the rams (shown opened in Illustration 7) are closed, movement of the ram blocks is stopped as the abutting rubber faces come into contact. The circular band of rubber between the ram blocks and the ram block holders is compressed as the holders continue to move inward, with the result that the rubber is extruded against both the upper and lower inside faces of the gate, and a perfect seal is effected.

The operating screws of Shaffer Type 38 Cellar Control Gates are of stainless steel, turned from solid bar stock, and are of increased diameter. By clamping the operating screws to the sides of the ram block holders, perfect alignment and complete rigidity is secured, and the side plugs, previously used, are no longer required. Ball races have been added to take the end thrust of the operating screws, thus making it easier to open and close the gates when under excessive internal pressure. Illustration 6 shows how the ends of these operating screws, as well as the sprocket chain, are now guarded.

Learn all about this efficient equipment by referring to Pages 2009 to 2044 of your 1939 Composite Catalog, or request a copy of the 1939 Shaffer Catalog from our office nearest you.



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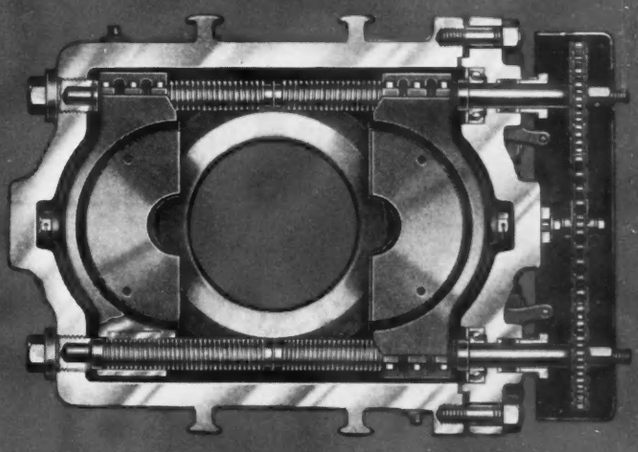

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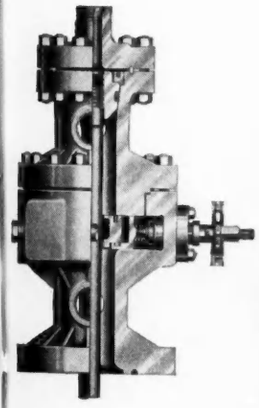

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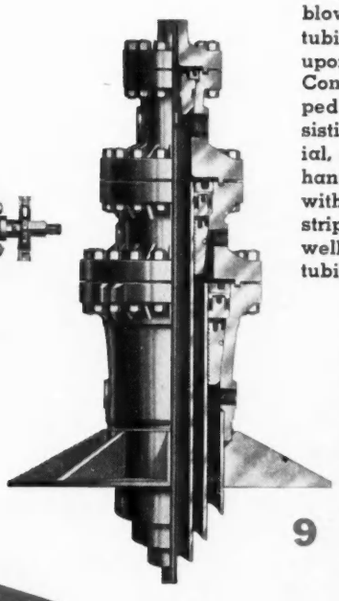

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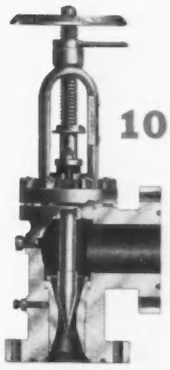
8. For positive protection against blow-outs while drilling-in and tubing the well, you can depend upon the Shaffer Universal Tubing Control Head. The gate is equipped with rams containing oil-resisting Neoprene packing material, and is operated with a single hand wheel. It may be equipped with a Shaffer Tubing Stripper for stripping tubing in and out of the well, or raising and lowering the tubing under pressure.

9. Shaffer Full Opening Spool Type Landing Heads meet the demand for a Landing Head through which drilling can be continued. The feature of changing casing programs by merely changing the size of slips and packing unit, is only one of many advantages described in detail in the 1939 Composite Catalog.

10. Not only do Shaffer Adjustable Flow Beans control the flow of fluid through a line, but they also provide a means of regulating the pressure and rate of flow with extreme accuracy. Changes in the area of the annular opening are quickly and accurately made — an important feature on both gas-lift wells and wells flowing by formation pressure.



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Described in detail on Pages 2009 to 2044 of the 1939 COMPOSITE CATALOG

Nineteen New Fields Give Michigan a Record Discovery Year

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Edenville	Midland	Chapman et al's State 1, NW SW NE 27-16n-1w	Dundee	3794	850	41.3	Field
Adams	Arenac	Pure Oil's Shearer 1, SE SE NE 26-19n-3e	Dundee	2964	90	39.6	New lime
Grant	Clare	J. A. McKay's Loveless 1, SE NE NW 35-17n-4w	Mich. Stray	1316	10	42	Field
Freeman	Clare	Higelmire Tr.'s Van Horn 1, NE SW NW 3-18n-6w	Monroe	3895	286	43.8	Field
Wise	Isabella	Turner Pet.'s White 1, SE NE NW 28-16n-3w	Dundee	3724	55	43.1	Field
Akron	Tuscola	Norton et al's Sharp 1, NW NW NW 30-14n-8e	Monroe	3426	62	39.9	New lime
Pine	Montcalm	H. L. Gentry's Christensen 1, SE NW NE 29-11n-8w	Traverse	2836	45	41	Field
Diamond Springs	Allegan	W. J. Cline's Helmer 1, NE SW SE 36-4n-14w	Traverse	1461	800	41.3	Field
Overisel	Allegan	White & Stewart's Oldebek 1, SE SE 21-4n-14w	Traverse	1479	600	41.7	Field
Bloomingdale	Van Buren	Fisher and McCall's Wiggins 1, SE SW SE 9-1s-14w	Traverse	1221	1200	42.2	Field
Dorr	Allegan	Eureka's Widenfeller 1, NE NW SW 29-4n-12w	Traverse	1623	190	40.9	Field
Kawkawlin	Bay	Gulf Ref. Co.'s Marston 1, SE SW NE 1-14n-4e	Dundee	2933	15	39.9	Field
Monterey	Allegan	Hood & Allen's Wright 1, NE SW SW 9-3n-13w	Traverse	1620	300	41	Field
Columbia	Van Buren	Ross & Lemans' Landrus 1, NW SW NW 11-1s-15w	Traverse	1173	40	41.3	Field
East Salem	Allegan	Gordon & Victory's Sutter 1, SW NW NW 11-4n-13w	Traverse	1625	125	41	Field
Mill Lake	Van Buren	Gooch et al's Maier 1, SW NW NE 14-1s-14w	Traverse	1175	110	41.4	Field
Grant	Clare	Gulf Ref.'s Klinger 1, NW NW NW 36-17n-4w	Stray Sand	1277	Gas	....	Field
Freeman	Clare	McClanahan's Perkins 1, NE NE NE 15-18n-6w	Stray Sand	1675	Gas	....	Field
Lincoln	Clare	Gulf Ref.'s Ann Arbor 1, NW NW 21-18n-5w	Stray Sand	1557	Gas	....	Field
Home	Montcalm	Socony Vacuum's Hansen 1, NE NE 22-12n-6w	Stray Sand	1319	Gas	....	Field
Walker	Kent	McCullum's Story 1, SE SW SW 32-7n-12w	Traverse	1997	69	40	Field
Bentley	Gladwin	United's Washburn 1, SW SW NE 28-17n-2e	Dundee	3536	290	....	Extension

Closky lime, which accounted for 10 of the strikes.

Production in the state surpassed 100,000 barrels daily during the latter part of the year, whereas two years ago it was 5000 barrels per day.

The Salem field was the most important discovery in 1938. It has been estimated the 7700 proven acres in this Marion County field will produce in excess of 100,000,000 barrels of oil from its dual pay zone.

The Loudon, or Beecher City, field of Fayette County, is the largest of Illinois' pools. It was discovered in 1937, but during 1938 spread until 18,000 acres were covered. This area is expected to have an ultimate recovery exceeding 150,000,000 barrels.

Because Illinois discoveries are being made at an average depth of 2590 feet, they do not represent the expenditure required for exploration purposes in other territories. Moreover, the state is without proration laws, and is much nearer to large consuming centers than either Oklahoma or Kansas. These factors all combine to give Illinois several advantages that indicate it will continue to expand in importance.

Shallow Strikes Feature Michigan

Opening of shallow lime production, 1200 to 1900 feet, in the southwestern part of the state was the outstanding feature of 1938 oil development in Michigan.

Fourteen of Michigan's 19 new pools opened last year were at depths of less than 2000 feet, and 10 of these were in Southwestern Michigan counties and all from the shallow Traverse lime horizon. Van Buren and Allegan counties were the site of the principal shallow development.

As the shallow well campaign proved a "poor man's paradise" in 1938, it is expected to get an equal play, if not a bigger one, this year. Tests to the Traverse can be drilled for an average of $5,000, or 25 to 45 percent under the cost of a 3500- to 4000-foot tests in the heavy glacial drift section of the central basin area.

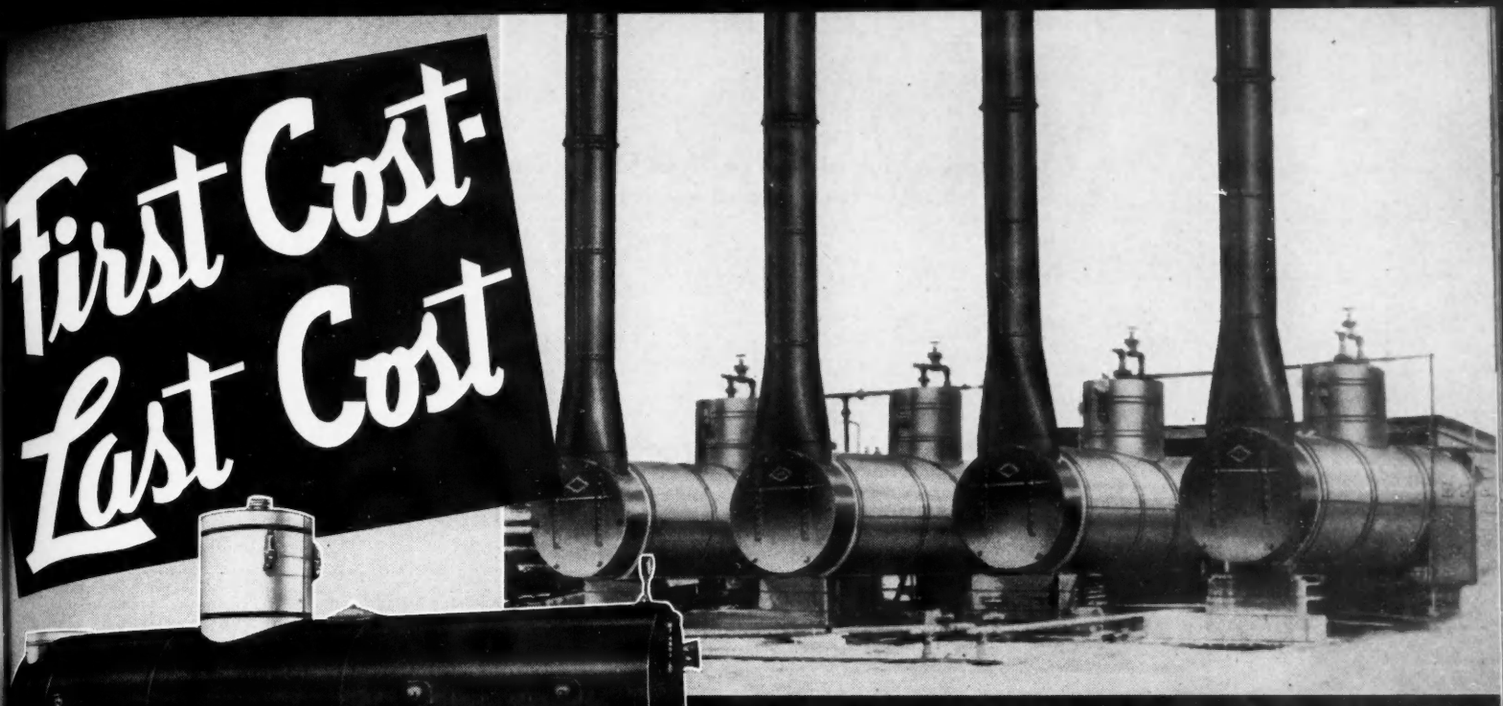
One major new pool was opened in central Michigan, when production was established in the Monroe limestone in Clare County at 3900 feet. An area covering between 1600 and 2500 acres appears to be productive.

Rotary equipment made its debut in Michigan with the successful completion of a 3900-foot test in Clare County, and its use to drill in the 600- to 700-foot glacial drift sections became common.

Kentucky Becomes Active

The widespread development in adjoining Illinois and its success caused attention to be focused on Kentucky, with the result that

First Cost-Last Cost



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Inner View of Section Showing Wool Insulation and Wire Netting

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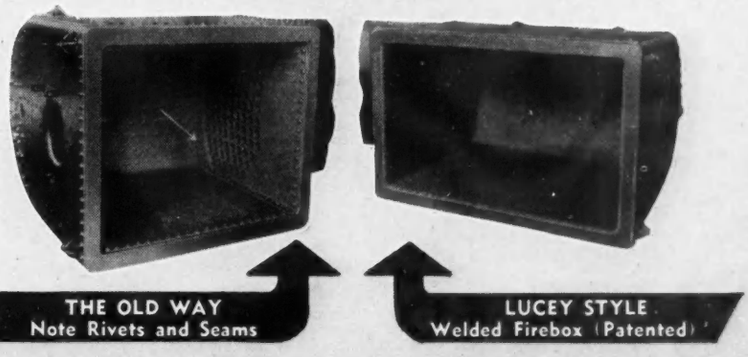

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Kentucky Site of Three New Fields During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Birk City	Henderson and Daviess.	Hoosier Drilling Co.'s No. 1 Blackwell, 1 mile SW of Birk City	McCloskey	1875	1400	35	Field
Birk City	Henderson and Daviess.	Benedum & Trees' 1¼ mile SW of Birk City	Chester, Cunningham (Aux Vases)	1800	....	..	Horizon
Quality	Butler	(Do not know discovery well)	Chester, Tar Springs, Hardinsburg	500	....	..	Field
Spottsville	Henderson.	Magnolia Petroleum's No. 1 Samuel Green, near Spottsville.	McCloskey	2176	....	..	Field

Southwestern Indiana Joins List of Important Discovery States

(Includes new fields and new sands in old fields)

Unnamed	Gibson	W. O. Allen's Cooper Estate 1, NW NE 13-3s-14w	McClosky	2920	500	....	New Field
Oaktown	Knox	L. E. Jordan & Son's Bond 1, SW SE 7-5n-9w	Stray Penn. Sand	803	405 M. ft.	Gas	Extension
Heusler	Posey	Sun Oil Co.-Sophia Dietz No. 1 (est. res. for field 260,000 bbl.) 264' from S line, 301' from W line, SW SW 1-7s-12w.	Waltersburg	1749	29	....	New Field
Point	Posey	Sun Oil Co.'s W. W. Gray 1, NE NE 29-8s-14w	McClosky	2709	30	....	New Field
Ogle	Sullivan	A. S. Reed's OliverOgle 1, NE SW 35-8n-10w	Stray Penn. Sand	821	2,000 M. ft.	Gas	New Field
Heims	Sullivan	A. R. McClennan's Frank P. Osburn 1, NE SE 1-8-n10w	Salem Ls	1597	25	....	New Sand
Lawrenceburg	Dearborn	Dearborn Development Co.'s H. A. Bobrink 1, NE SE 15-6n-1w	Trenton	450	300 M. ft.	Gas	New Field

three new fields were found there during 1938. The same geological conditions that exist in the Illinois Basin continue across the river into Kentucky, and this state is due for additional prospecting in its western portion.

The most important Kentucky strike was the finding of the Birk City field in Henderson and Daviess counties. More than 100 producing wells have been completed here, and it is not definitely defined as yet. The McClosky lime is the producing formation.

Another McClosky lime producing field was opened later in the year at Spottsville in Henderson County.

Indiana Joins Basin Play

Indiana joined the current Illinois Basin development with two McClosky lime producing fields discovered during 1938. The state, as a result of these strikes and active lease buying, may become an important area during 1939.

The state's most important discovery was in Gibson County, where the McClosky lime was proven productive at 2920 feet. The well made 500 barrels initial. It is 18 miles from the old Princeton field, the nearest production.

Because of shallow discoveries, Indiana's average depth of wildcat producing wells was considerably less than in 1937, being 1708 feet against 2174 feet.

South Texas Leading Area

For the second consecutive year, South Texas had more discoveries than any other area when both new fields and new producing horizons in previously found pools are considered. There were 109 strikes made during 1938, of which 49 represented new fields and 60 were additional producing levels in old pools. This compared with a total of 111 discoveries in 1937, of which 41 were fields and 67 were horizons; 1936 had 22 fields and but 30 new pay strata in old regions.

With the addition of 15,950 acres, the total amount of productive acreage in South Texas was brought to 134,350 acres.

The bulk of South Texas' discoveries were along the lower Gulf Coastal trend, where the greater part of the drilling campaign occurred. Included in the developments were several producing areas of probable major proportions.

The coastal trend of South Texas produces from deeper depths than were productive in the district a few years ago. As a result South Texas continued to show an increase in the depths of new discoveries, its average rising to 4631 feet in 1938, which compares with 4175 feet in 1937 and 4061 feet in 1936.

Nueces and Jim Wells counties shared honors for new discoveries

Forty-Nine New Fields in South Texas During 1938

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Riddle	Bastrop	Ogden & Riddle's Riddle 1, Henry Warnell Sur	Dale Lime	1665–1773	33	....	Field
Tulsita	Bee	Herbert Aid et al's Hall 1, George A. Kerr Sur	Pettus	3564–90	3M. ft. Spray	....	Field
No. Normanna	Bee	Dirk's Bros. Beck 1, J. M. Uranga Grant	Pettus	4215–61	75	....	Field
Tulsita (S)	Bee	Atlantic's Courtney 1, George Kerr Sur	Pettus	3658–65	7	....	Field
La Coste	Bexar	R. W. Fair's Medina Irrigated Farms Co., Blk. 5	Anacacho	1150–90	20	....	Field
No. Somerset	Bexar	H. S. Ball & DuBose's Miller 1, J. C. Christopher Sur. 55	Taylor	1357–72	5	....	Field
Chreisman	Burleson	Red Bank's Coffield 1, Eliza Sante Sur	Edwards	6167–72½	175	....	Field
Walnut Creek	Caldwell	Fred Shield's Walker 1, Pablo Martinez Sur	Serpentine	1230–1336	74	....	Field
Casa Blanca	Duval	Magnolia's, Duval County Ranch 1, G. S. & F. Sur. 291	Fayette	1180–90	74	....	Field
Fitzsimmons	Duval	Porter's Fitzsimmons 2-A Poitevent Sur. 291	Hockley	3592–3607	55	....	Sand
Fitzsimmons	Duval	Porter's Fitzsimmons 1, Poitevent Sur. 291	Pettus	4270–4303	108	....	Field
Longhorn	Duval	Longhorn's M. M. Miller No. 1	Hockley	4893–99	203	....	Field
Los Picachos	Duval	V. G. Schimmel's Hagist 5, Sur. 265	Hockley	2166–96	28	....	Field
No. Sweden	Duval	Hiawatha's Southland 6, Santos Flores Gr	Cockfield	5488–5500	96	....	Sand
No. Sweden	Duval	Circle's West 2, Santos Flores Gr	Hockley	4537–52	122	....	Sand
No. Sweden	Duval	Gravis' Vaello 1-A, San Andres Grant	Fayette	3965–72	13 mcf	....	Sand
Tesoro	Duval	Arkansas Fuel's Cuellar 1, B. B. B. & C. R. R. Co. Sur	Pettus	5108–36	98	....	Field
Frio Town	Frio	Pagenkoff & Jamison's Houston Est. 1, Figuerra Sur	Austin Chalk	2592–2651	....	....	Non Prod.
Shattel	Frio	Humble's Schley 1, J. Travalder Sur	Chalk	4685–4800	50	....	Field
Maetze	Goliad	De Arman & Hinard's Drier 1, B. S. & F. Sur. 7	Vicksburg	3803–15	20-dist. 1¼ mcf	....	Sand
Sarco Creek	Goliad	Rual B. Swiger's Wood 1-B	Vicks	5009–48	34.5	....	Field
Speller	Guadalupe	H. G. Spiller's Wright 1, H. Cattle Sur	Austin Chalk	2063–2265	69.8	....	Field
McAllen	Hidalgo	R. E. Harding's Lynn 1, Blk. 202	Frio	5970–94	24, 2½ mcf.	....	Field

South Texas Table continued on next page

to Oil Equipment Men

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during 1938, each providing 20. Jim Wells had 4 new fields and 16 additional sand uncovered. Nueces County received 3 new fields and 17 new sands. Next in line were Starr and Duval counties with five new fields and a like number of new producing horizons discovered.

The Frio was the most active in the geological column from a discovery standpoint, having 56 strikes. The Jackson formation was second with 17. The Vicksburg had 10, the Cockfield 9, the Cretaceous

Forty-Nine New Fields in South Texas During 1938

(Continued from preceding page)

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
McAllen	Hidalgo	R. E. Harding's Card 1, Lot 8, Blk. 8	Frio	7402–98	92, 8.6 mcf.	....	New Sand
San Salvador	Hidalgo	Gulf States' Cardenas 1, San Salvador del Tulle Grant	Frio	7925–55	160, 6 mcf.	....	New Field
Weslaco	Hidalgo	Atlantic Ref. Corp.'s A. M. Rio Grande L. & I. Co. 1, Sec. 175	Frio	8985–9015	19	....	Field
Weslaco	Hidalgo	Allaslie's American 1, Sec. 175	Frio	8634–42	74.59	....	Sand
Samfordyce	Hidalgo	Phillips' R. Flores 1, Sh. 250, Porcion 39	Vicksburg	5840–5900	50, 2½ mcf.	....	Sand
Cordelle	Jackson	Poder & Adams' Faust 1, Peter White Sur	Catchoula	2650–75	177	....	Field
Francitas	Jackson	Texas Co.'s Weed 1, John D. Newell Sur	Frio	7454–68	78, 3 mcf.	....	Field
Francitas	Jackson	Wynn Crosby's Broughton 1, P. Green Sur	Frio	7389–7410	66	....	New Sand
West Ranch	Jackson	Magnolia's West 3-A, Ramon Musquez Sur	Marginulina	5080–86	132.5	....	Field
Kelsey	Jim Hogg	Humble's Bass 2, San Rafael Sur	Frio	4730–48	164	....	Field
Alfred	Jim Wells	Rowan & Hope's Adam 1, T. & N. O. Sur. 19	Frio	3223–34	125	....	Field
East Alice	Jim Wells	Presnall & Mosser's Bankers Mortgage Co. 1, La Vaca Grant	Frio	3480–96	4 & 2, 8 mcf.	....	Field
East Alice	Jim Wells	Pan American Calloway's Cook 1, La Vaca Grant	Frio	5132–82	20, 3 mcf	....	New Sand
East Alice	Jim Wells	Earl Calloway Pan American's Cook 2, La Vaca Grant	Vicksburg	5300–05½	20, 2 mcf.	....	Sand* (2)
East Alice	Jim Wells	Graham & Mosser's Bankers Mortgage Co. 1, La Vaca Gr	Vicksburg	5286–5339	108	....	New Sand* (2)
East Alice	Jim Wells	Tom Graham's Charles Hirsch 1, Estanfort Sur. 1	Frio	4605–40	50, 5 mcf.	....	Sand
Alice	Jim Wells	H. H. Howell's Lindsey & Reed 1, La Vaca Grant	Vicksburg	5375–5425	178	....	Field
Alice	Jim Wells	Walter J. Goldston's Lindsey & Reed 1, La Vaca Grant	Frio	5141–61	16 & 1, 6 mcf.	....	New Sand
Alice	Jim Wells	H. H. Howell's H. J. Mosser 1, Bustillos Sur	Frio	4782–4802	160	....	New Sand
Alice	Jim Wells	Montour Production Co. et al's H. A. Sayler No. 2, Spring Creek Survey	Frio	4512–28	3 mcf.	....	New Sand
Alice	Jim Wells	Southern Minerals Corp.'s C. B. Stillwell 1, Spring Creek Sur	Vicksburg	5425–52	140	....	Sand
Alice	Jim Wells	Tom Graham's 1 Martins, La Vaca Grant	Frio	3521–33½	2 mcf.	....	New Sand
Alice	Jim Wells	R. V. Bryant's M. J. Rattan No. 2, Spring Creek Sur	Frio	5032–36	200	....	New Sand
Alice	Jim Wells	Texas Gulf Prod. Co.'s Smith & Gardner 2, Spring Creek Sur	Frio	5210–23	146	....	Sand
Alice	Jim Wells	Southern Minerals Corp.'s C. B. Stillwell 2, Spring Creek Sur	Frio	5085–5115	25, 3 mcf.	....	New Sand
East Premont	Jim Wells	Transwestern Oil Co.'s B. H. Dunlap 1, Sec. 181	Frio	5365–70	85	....	Sand
East Premont	Jim Wells	Magnolia Petroleum Co.'s No. 10, A. A. Seligson, Los Jarboncillos Grant	Frio	5626–32	85	....	Sand
East Premont	Jim Wells	Magnolia Petroleum Co.'s No. 10, A. A. Seligson, Los Jarboncillos Grant	Frio	5807–12	103	....	Sand
East Premont	Jim Wells	Magnolia Petroleum Co.'s No. 10, A. A. Seligson, Los Jarboncillos Grant	Frio	6132–38	78	....	Sand
Bandera	Jim Wells	Magnolia's Valadez 1, La Anima Sola Grant	Jackson	6408–15½	40 mcf.	....	Field
Junction	Kimble	Plateau's Anderson 1, Dufner Sur	Ellenberger	1810–1869	100	....	Field
Junction	Kimble	Plateau's Bolt 1, S. Jones Sur. 42	Penn	1420–35	12	....	Sand
Oakville	Live Oak	Simmons' McGriff 5-B, O. Docharity Sur	Hockley	2126–2140	105.3	....	Sand
Ramirena	Live Oak	Hantho Nelson's McNeill Est. 1, Parks Sur	Pettus	5052–79	3 mcf.	....	Field
Campana	McMullen	Spice's Edrington 1, A. B. & M. Sur	Hockley	2492–2517	20	....	Field
Loma Alta	McMullen	Wagner's (Alabama Minerals) Gordon 3, Sec. 127	Hockley	2221–32	40	....	Sand
Munson	McMullen	Bruce Albright's Nueces L. & L. 1, B. S. & F. Sur	Mirando	1202–13	80	....	Field
San Jose	McMullen	O. T. Schimmel's Kountz 2, E. T. R. R. Sur. 5	Fayette	1147–63	5, 3 mcf.	....	Field
Dunlay	Medina	Ewing Oil Co.'s Riff 1, Sur. 42	Serpentine	542–714	120	....	Field
Agua Dulce	Nueces	Union's Galladay 1, Agua Dulce Grant	Frio	6733–44	35	....	Sand
Agua Dulce	Nueces	Union's Torbett 1, I. G. N. Sur. 83	Frio	5295–5307	480	....	Sand
Agua Dulce	Nueces	G. P. Shelton's E. H. Sands et al No. 1, Sec. 86	Frio	4665–75	60, 2 mcf.	....	New San
No. Agua Dulce	Nueces	Union's Simmonds 1, Agua Dulce Grant	Frio	4810–34	60	....	Field
Clara Driscoll	Nueces	Reed's Holloway 1, Sec. 108	Frio	5333–55	412	....	Sand
Clara Driscoll	Nueces	Navarro Oil's Houston No. 1, Sec. 126	Frio	5084–5102	95	....	Sand
So. Clara Driscoll	Nueces	Wellington Seaboard's Dugger 2, Pauls subdivision	Frio	5340–67	210.17	....	Sand
Saxet	Nueces	Richardson's Cann & Sechrist No. 24, Blk. 23, Russel subdv.	Vicksburg (?)	9927	175	....	New Sand
Saxet	Nueces	Richardson's Erigan 2, Shepherd Farm Lots	Frio	7250–7390	192	....	Sand
Saxet	Nueces	Western Gulf's Isensee 4, C. Land Sur	Frio	6464–67	145	....	Sand
Saxet	Nueces	Sultex's Taggert 1-B, B. S. & F. Sur. 401	Frio	6835–41	350.64	....	Sand
Saxet Heights	Nueces	Culton's Baldwin 4, Russell Farm Lots	Heterostegina	5157–67	131	....	Sand
Stratton	Nueces	Camp Prod. Co.'s Wardner 4, Sec. 16	Frio	6273–6300	163	....	Sand
Riverside	Nueces	Stanolind's Clark 1, Wintergarden subdv.	Frio	4881–4915	2 mcf.	....	Field
Luby	Nueces	Seaboard's J. P. Luby, 23 Palo Alto Grant	Frio	5169–97	144	....	New Sand
Turkey Creek	Nueces	Carlos Oil's Smith 1, Martinez Sur	Catahoula	4070–80	305.34	....	Sand
Turkey Creek	Nueces	Renwar's Kenedy 2-B, Hinojosa Sur	Frio	6430–56	148.98	....	Sand
Turkey Creek	Nueces	Morgan's Fee 2-C, A. B. & M. Sur. 411	Catahoula	3846–60	182	....	Sand
Turkey Creek	Nueces	Morgan's Fee 1, Sec. 411	Frio	5641–54	230.12	....	Sand
Turkey Creek	Nueces	L. A. Douglas' McKenzie 1, B. S. & F. Sur	Frio	5794–5813	571	....	Field
La Rosa	Refugio	Coronado's Rooke 1, Aldrete Grant	Frio	5873–5920	114	....	Sand
La Rosa	Refugio	Rutherford's Schirner 1, Aldrete Grant	Frio	6320–28	180	....	Sand
La Rosa	Refugio	I. J. Allen's Rooke 2, Aldrete Grant	Frio	5382–5440	32	....	Field
Refugio	Refugio	Morgan's Mitchell 2-D, Refugio Town Sur	Frio	5430–50	135	....	Sand
Refugio	Refugio	Union Prod.'s Power 9, Refugio Town Sur	Frio	7679–7703	120	....	Sand
Woodsboro	Refugio	Rutherford & Barnsdall's Neiman 1, Lopez Sur	Frio	5253–47	3 mcf. Spray	....	Field
Plymouth	San Patricio	Plymouth's Welder 95-C, Welder Ranch subdv	Frio	6155–59	162.87	....	Sand
E. Plymouth	San Patricio	Humble's Smith & Talbert 1, Taft Farm Lots Subdv.	Heterostegina	4800–36	10 mcf.	....	Field
E. White Pt	San Patricio	Plymouth's F. Brigham 1, Pauls subdv. Fulton Pasture	Frio	5627–65	216.60	....	Field
Barbacoas	Starr	Tom Graham's A. Gutierrez 1, Sh. 448, Por. 88	Frio	2915–40	2 mcf.	....	Sand
Barbacoas	Starr	Lee Davis' M. Garcia 1, Sur. 965	Frio	2660–97	80	....	Sand
Charco Blanca	Starr	Sun's Young 1, Juan Cisneros Grant	Jackson	2708–30	3 cmf.	....	Field
La Reforma	Starr	Wheelock & Collins' Guerra 1-A, Santa Cruz Grant	Frio	5917–69	60, 2½ mcf.	....	Field
Rincon	Starr	Transwestern's Slick School 1, Sur. 266	Vicks	4172–4259	25, 5 mcf.	....	Sand
Sacatosa	Starr	Harvey & Henderson's Salinas 2, Sacatosa Grant	Fayette	1644–60	4 mcf.	....	Field
Samfordyce	Starr	Porter's Flores 3, Sh. 250, Por. 38	Frio	3183–96	15 mcf.	....	Sand
Sun	Starr	Sun's Olivarez 1, Sur. 239	Frio	4901–11	132	....	Sand
Sun	Starr	Sun's McKinney 1, Smith Sur. 242	Frio	4842–58	179.64	....	Field
Sun	Starr	Circle's Olivarez 1, Sur. 241	Vicksburg	5115½–35	55	....	New Sand
Vinegarone	Val Verde	Campbell & Ross' Whitehead & Wardlow, G. S. & F. Sur.	Trinity	298–305	10	....	Field
E. Telferner	Victoria	W. V. Bowles' Robertson 1, Burham Sur	Frio	5100–5114	65 bpd.	....	Field
Keeran	Victoria	Barnsdall's Keeran 1, M-de-Leon Grant	Frio	6990–97	49.87	....	Field
N. E. Placedo	Victoria	Stanolind's Vandenberg & Hill 2, Benavides Sur	Frio	5300–95	5 mcf.	....	Sand
Cole-Bruni	Webb	D. P. Kenyon's Benavides 1-S, Blk. 18, Hale subdv	Yegua	3270–80	136	....	Sand
N. E. Placedo	Victoria	Stanolind's Henderson & Pickering 2, E. Benavides Sur.	Heterostegina	4723–30	2 mcf.	....	New Sand
Houser	Webb	W. F. Houser's Garcia & Villareal 1, Sec. 720	Cockfield	2492½–2524	15 mcf.	....	Field
Loma Valdez	Webb	H. E. Nessly's Bruni 3, Sur. 499	Fayette	1790–1812	7 mcf.	....	Field
Mirando Valley	Zapata	Calvin's Lopez 1, Sur. 253	Hockley	1873–81	150	....	Sand

from the Camel's Back . .

In the lush days that once existed in the oil business, the difference between good equipment and bad got relatively little attention. The camel had a strong back and a light load.

But as time went by the burdens of the industry grew, and it became increasingly wary of mediocre equipment and unstable service.

In the meantime Frick-Reid was selling Quality Products Only, and giving thoroughly dependable service, because it looked like the right policy for a supply company that intended to stay in business, and for the more important reason that we felt that way about doing business with our friends.

In 1939 this disposition to lift a straw from the camel's back will mean more to our customers, and to the industry in general, than in any previous year. Good equipment and able service will sometimes mean the difference between profit and loss or success and disappointment. It will be a year when our policy will strengthen old friendships and, we hope, bring us discerning new customers.

FRICK-REID
Supply Corporation

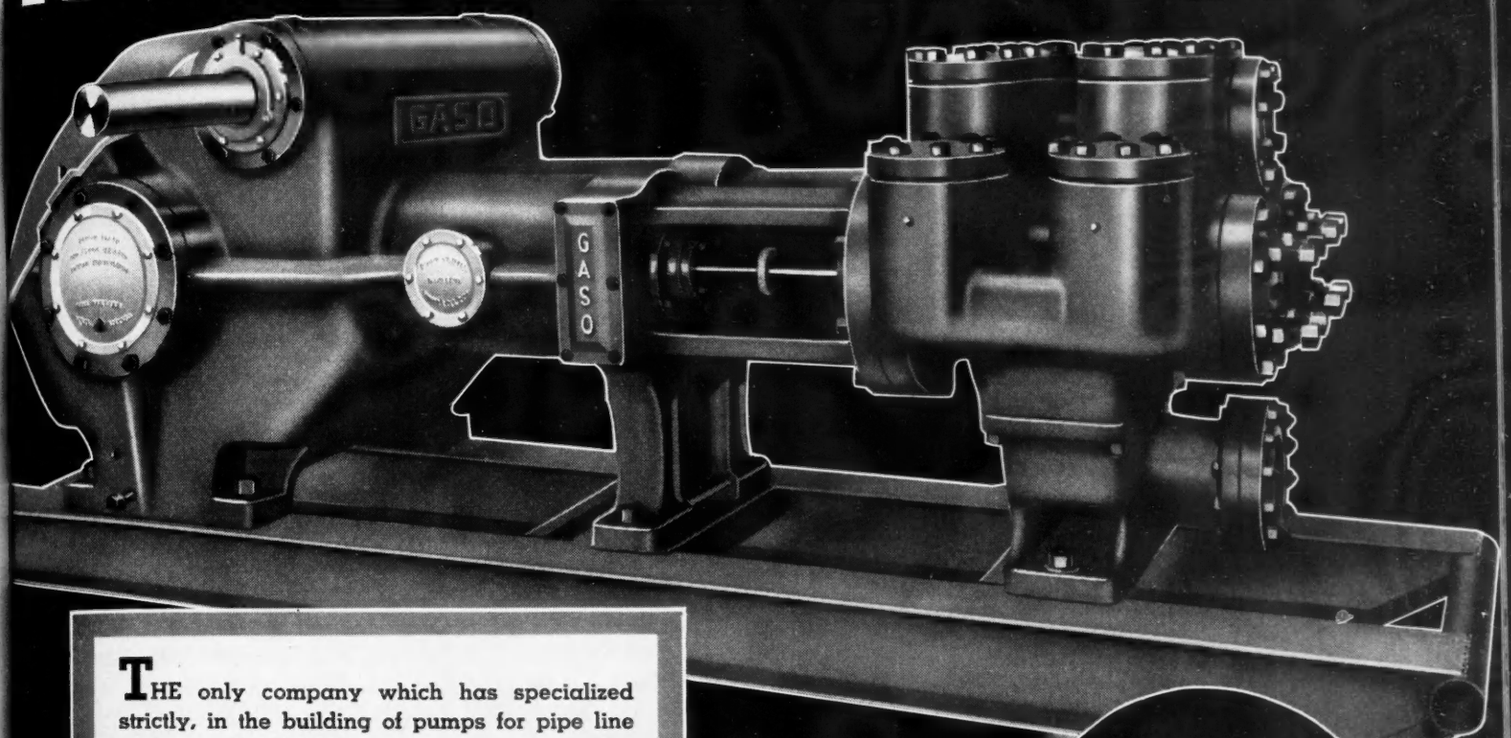
TULSA, OKLAHOMA

9, and below the Cretaceous 2. Above the Frio, but 6 discoveries were made.

The most outstanding development during the past year was definite establishment of the Vicksburg Trend as a major source of production. This trend extends the entire length of South Texas, paralleling the Gulf Coast between the Frio and Jackson zones. The majority of Vicksburg exploration during the year, however, was confined to a strip through the east central portion of Jim Wells Coun-

New South Texas Discoveries Were in Scattered Locations

IN PIPE LINE PUMPS



THE only company which has specialized strictly, in the building of pumps for pipe line service — GASO'S concentration on this one task has enabled our engineers to "set the pace" for 23 years, in this field.

GASO has led — others have followed.

Our name is identified with the introduction of fully enclosed, flood lubricated models — with the adoption of long frames, to prevent overlapping of piston rods and possibility of the pumped fluid reaching the crank case — with the introduction of roller bearings for crank, pinion and worm shafts—with the insistence on extra-large valve openings and fluid passages, extra-deep stuffing boxes, gears center-mounted on shafts, and extra-sturdy construction generally. A check will show that GASO Pumps excel in the number of construction advantages.

GASO Pumps are recognized throughout the world as having consistently maintained the position of "pace setter" in their field. May we send you a copy of our new catalog?

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Export Office: 149 Broadway, New York.
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new

FIG. 2652 — 12" stroke — designed to pump oil and water through long lines at pressures from 500 to 1500 lbs. at capacities of 592 to 176 Bbls. May be arranged for any type drive.

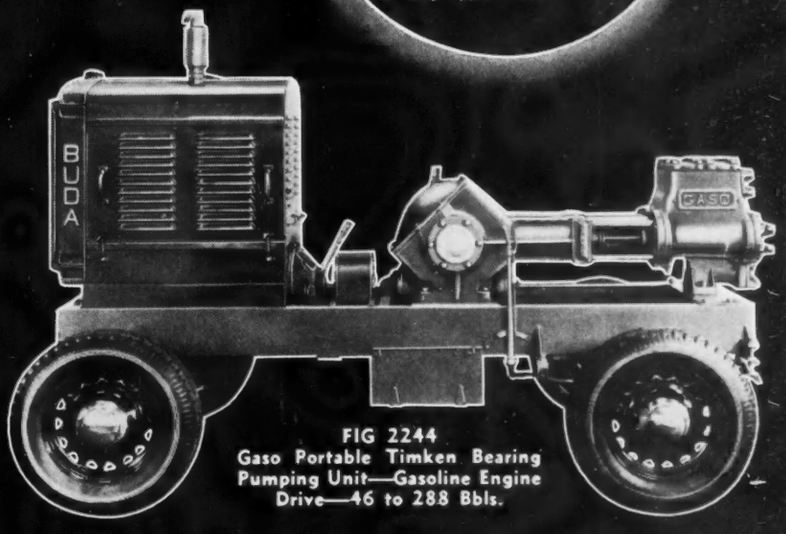


FIG 2244
Gaso Portable Timken Bearing Pumping Unit—Gasoline Engine Drive—46 to 288 Bbls.

GASO PUMPS

West Texas Fields Increased by 12 During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Shafter Lake	Andrews	The Texas Co.'s University 1-H, NW NE SE Sec. 4, Blk. 14	Yates	2952	1.7 M. ft.	Gas	Pool
	Andrews	Seaboard Oil Corp.'s Munger-Nix 1, C NE¼ PSL Sec. 1, Blk. A-41	Permian	4526	30	27.8	Pool
	Cochran	Geo. P. Livermore, Inc.-J. R. Meeker's D. S. Wright 1, labor 26, leag 96, Mills C. S. L. Sur.	Permian	4987	22	27	Pool
	Cochran	The Texas Co.'s Mallett 1, NEc PSL Sec. 7, Blk. G	Permian	5058	74	32.5	Pool
Dean	Cochran	Pete Wiggins-Ed. Hyde et al's Dean-Slaughter 1, labor 26, leag 92, Lipscomb C. S. L. Sur.	Permian	5078	80	30.6	Pool
	Crane	Magnolia's University 1-16, NWc Sec. 16, Blk. 30	Permian	3335	21	32	Extension
Crockett	Crockett	Lu-Tex Oil Co. (was Choate-Hogan's) University-Gulf 1-K, near SE NE SW Sec. 17, Blk. 14	Permian	1575	104	30.7	Pool
	Ector	Sinclair Prairie Oil Co.'s Paul Moss 1-A, NW NW SE T. & P. Sec. 40, Blk 44, T-2-S	Permian	4120	20	32	Pool
Swenson	Garza	Gulf Oil Corp.'s Swenson 1-B, C NW¼ H. & G. N. Sec. 25, Blk. 2	Pennsylvanian	7334	150	36.7	Pool
	Pecos	E. W. Francis et al's Westerman-Hadden 1-a, Sec. 1, Blk. 166, Rubian Phares Sur.	Permian	2945	9 M. ft.	Gas	Pool
	Reeves	Lagoki Oil Co.-H. F. Anthony's Richards & Shaw 1-a, 660 ft. from N 1360 ft. from W lines PSL Sec. 16, Blk 59	Castile	1630	15	27.5	Pool
	Reeves	Pacific-Mid-Continent Corp.-Frankley & E. R. Rice's W. A. Tunstill 1, NE NE NW T. & P. Sec. 10, Blk. 56, Tsp. 2	Delaware	3305	3¾ M. ft.	Gas	Pool
	Scurry	Coffield & Guthrie, Inc.'s E. E. Spears 1, NW NW SW H. & T. C. Sec. 130, Blk. 97	Permian	2370	89	29.6	Pool

ty, south and southwest into western Brooks, eastern Duval, eastern Jim Hogg, eastern Starr and western Hidalgo counties.

In addition, 21 discoveries were made in the lower Frio section along this trend. This would indicate that a large amount of development will result in 1939.

Another South Texas trend for development will be the Mount Selman - Wilcox play, projected through a portion of South Texas from the Texas - Louisiana Gulf Coast. Already, a heavy lease buying campaign is underway with several tests expected to be drilled during the early part of 1939.

The deeper Jackson play extending through eastern Duval County, likewise, will receive a development campaign to follow up successes in 1937 and 1938.

The past year saw the establishment of new deep drilling and producing records for the area, and indicate a further expansion in this direction in the future. A test in the Agua Dulce field, Nueces County, was carried to 13,728 feet, despite combating heaving shale for the last 5000 feet. This is the third deepest hole in the world, and the deepest outside of California. Completion of a distillate producer at 9927 feet in the Saxet field, Nueces County, gave the area its deepest production.

Of vital importance to the future of South Texas is the expansion of the condensate production and its utilization. Two large recycling units were constructed in the Agua Dulce - Stratton sector, Nueces County. Approximately two score fields in the lower Gulf Coast trend have condensate production. The coming year is expected to see a further increase in number of distillate fields.

West Texas Slumps

New discoveries in West Texas were fewer in numbers than in the preceding year, and did not include a single strike of immediate importance.

Twelve new fields were found, in contrast with 17 the preceding year. The average depth of wells, however, increased from 3498 feet to 3823 feet.

The north portion of the Permian Basin, which has been rated as prospective territory since discovery of the Bennett field in 1935, added the greatest volume of proved acreage. Five widely scattered pools in the upper basin will account for a large portion of the new drilling in the district during the next two years, while more discoveries are quite probable.

The expansion of the Wasson field, centering on the Gaines-Yoakum County line, in the largest producing area in West Texas, and major extensions given the Bennett field placed the upper region out front as the future drilling center. The linking of the Wasson and Bennett fields by an unbroken stretch of production is in prospect.

Brief period of production recorded by a northeast Garza County wildcat drilled by Gulf Oil Corporation from the Pennsylvanian at 7327-34 feet, and a northern Pecos County test showed oil before abandonment in the Ellenberger caused two major lease plays during the year. Both revealed structural conditions that warrant more prospecting.

New Mexico Discoveries Gain

New Mexico accounted for a greater number of discoveries in 1938 than the previous year, but only one offers any immediate prospects of a substantial drilling campaign.

The latter is the Lovington field in Lea County. There were three other discoveries in this county.

The average depth of New Mexico's discovery wells jumped from 2605 feet in 1937 to 3101 feet in 1938.

The state's 7 new fields the past year compared with but 3 the preceding period.

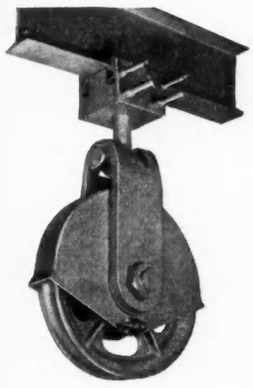
Expansion of established fields in Lea County, particularly the Vacuum area, were noteworthy. The Vacuum field more than dou-

But Two Texas Panhandle Discoveries in 1938

(Includes new fields and new sands in old fields)

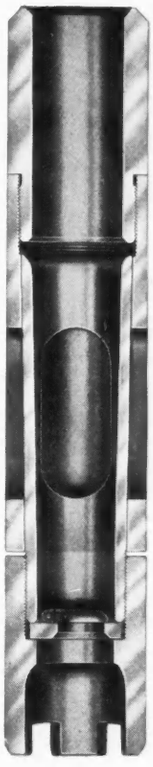
Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
	Sherman	Indian Territory Ill. Oil Co.'s M. C. Davis 1, C NE T. & N. O. Section 404. Block 1-T	Permian	3116	10 M. ft.	Gas	Pool
	Hansford	Texas Mineral Investment Co.. W. T. Coble's Norton 1. NW NW SW GH&H Section 123. Block 2	Permian	3136	¾ M. ft.	Gas	Pool

NEW ADVANTAGES



BAILING AND CORING BLOCK
Attaches to Base Beam of Crown Block; Drilling Lines Not Disturbed When Running Wire Line Core Barrels and Other Tools

(Above) Working capacity 60,000 pounds, with safety factor of 2½ to 1. Rope cannot jump sheave. Swiveled for 360° turn; hinged for 180° swing in vertical plane. Page 212.



BAILER BOTTOM
Accidental Dumping In Hole Prevented; Easy Dumping At Surface Assured

(Right) Note the tapered construction of the inner and outer sleeves. In pulling out, pressure keeps bailer closed; when set on floor, friction between sleeves is released so that off-set slots are easily opened for quick dumping. Page 211.

STREAMLINE TUBING BLOCKS
Made for Production Work And For "Slim-Hole" Drilling—One to Four Roller Bearing-Mounted Sheaves

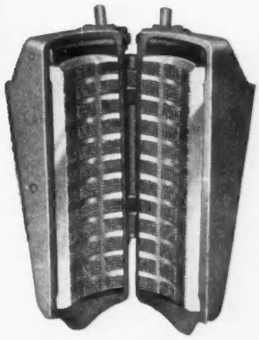
Load-capacity rated at 30 tons per sheave, with a safety factor of 3 to 1 based on yield point of material. Sheaves 20, 24 or 30 inches in diameter. Page 188.

ROLLER KELLY DRIVE BUSHING
Insures Smooth Feed of Grief Stem Through Rotary at All Rotational Speeds

Even, accurate lowering of kelly prevents bit from digging into formation; lessens twist-off hazard, reduces strain on wire lines. Improves results during coring with any type of core barrel. Page 177.

CIRCULATING-TYPE PACKING LINER HANGER
Permits Hanging Liner, Circulating to Clean Out Hole, Then Insures Permanent Pack-off

Protects liner from wear from rods, tools, and tubing being run or operated in it. Suspends liner so that it cannot bend, buckle, or sink into formation at bottom. Lead packing rings cannot become vulcanized to casing. Page 186.

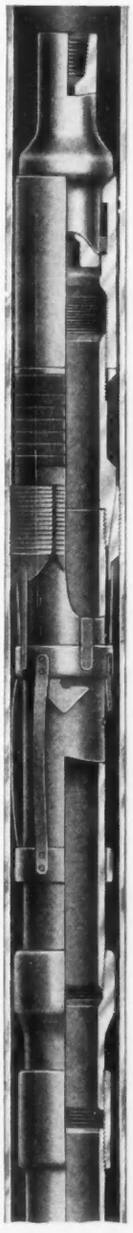


SELF-ALIGNING ROTARY SLIPS
Liners Are Automatically Adjusted Under Load To Vertical Axis of Pipe In Any Position

Compensate for wear of the rotary table and master bushing. Insure full length, positive grip, with the weight of the string uniformly distributed over the entire gripping area of each liner. Light in weight; easy to handle. Pages 180 and 181.

TRUBORE DRILL COLLAR
Balanced Physical Properties Insure Strength, and Resistance to Fatigue And Abrasion

. . . and the accurately centered circulation hole promotes smooth, well balanced rotation in the hole. Made in any desired style, in lengths to 60 feet. Page 179.



FORGED UPSET KELLY
Integral-Forged Connections Insure Strength, Permit Re-cutting of Threads

Uniformity of properties throughout the kelly is secured by carefully controlled treatment. Baash-Ross Forged Upset Kellys are made in all styles, lengths to 54 feet, with large circulation holes, if desired. Page 178.

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COMPANY ROSS

bled its proved acreage through completion of 124 wells. The producing area at the end of 1938 was estimated at 13,000 acres, with prospects of being enlarged to more than 20,000 acres. All lease owners are adhering to a 40-acre well spacing plan.

California Leads in Depth

California's outstanding development during 1938 was the drilling of the world's first 15,000-foot test and the completion of the world's first 13,000-foot producing well—Continental Oil Company's KCL A-2 at Wasco. This well drilled to 15,004 feet, and was plugged back and completed as a producing well at 13,175 feet. Later in the year it lost its deep producing championship to South Louisiana, but still retained its drilling honors.

The year also saw the discovery of a 11,520-foot producing sand in

Seven New Fields Found in New Mexico During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
.....	Eddy.....	Jas. E. Hughes et al's Brooks 1, C NE NE 19-17s-28e.....	.....	635	10	35	Pool
.....	Eddy.....	R. A. Shugart et al's Coulthard 1, C NW SW 35-18s-31e..	Permian.....	3920	48	37	Pool
.....	Lea.....	Repollo Oil Co.'s State 1-197, SEc 6-17s-34e.....	Permian.....	4685	294	37	Pool
Corbin.....	Lea.....	The Texas Co.'s M. A. Corbin 1, C NW NW 10-18s-33e...	Permian.....	4319	86	36	Pool
Lovington	Lea.....	Westmount Oil Co.'s State-Amerada 1, C NW NE 12-17s-36e.....	Permian.....	3375	Gas	....	Pool
Wilson.....	Lea.....	F. C. Wilson et al's State 1, C SW NE 7-21s-35e.....	Permian.....	3813	123	33	Pool
McMillan.....	Eddy.....	Martin Yates et al's Bowers 1, SW SE SE 31-19s-17e.....	Delaware.....	960	20	34	Pool

IDECO

New UNIT PUMPERS *the Most Complete Line Manufactured-*

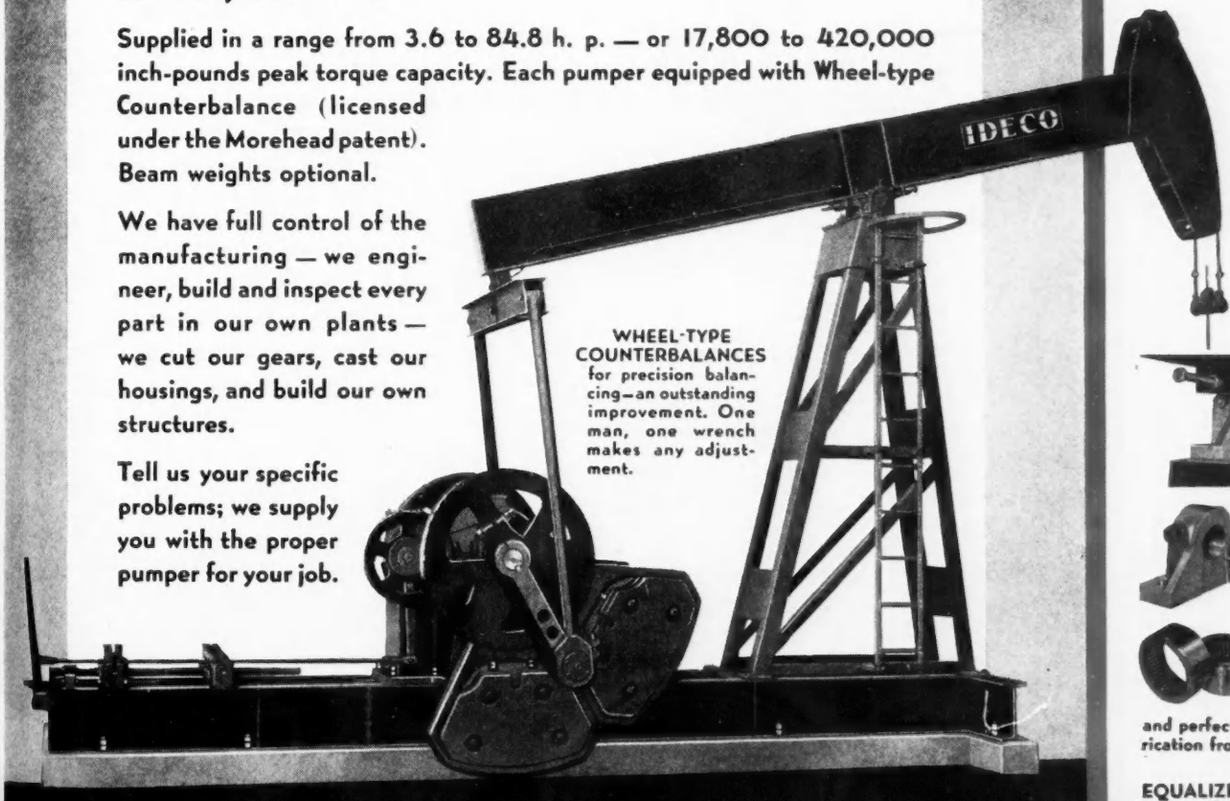
. . . with exclusive features embodying the most advanced engineering in pumping equipment.

A pumper for every condition — the broadest selection obtainable — more than twice as many complete unit selections as in any other line.

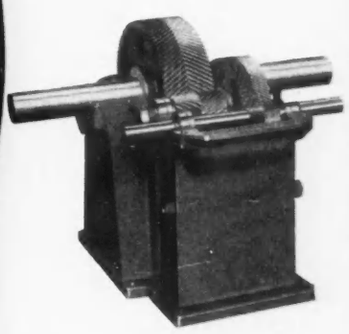
Supplied in a range from 3.6 to 84.8 h. p. — or 17,800 to 420,000 inch-pounds peak torque capacity. Each pumper equipped with Wheel-type Counterbalance (licensed under the Morehead patent). Beam weights optional.

We have full control of the manufacturing — we engineer, build and inspect every part in our own plants — we cut our gears, cast our housings, and build our own structures.

Tell us your specific problems; we supply you with the proper pumper for your job.

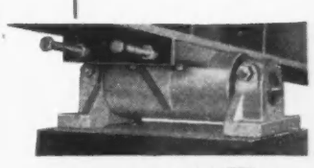


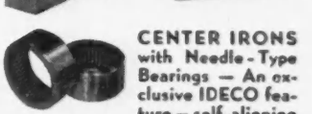
WHEEL-TYPE COUNTERBALANCES for precision balancing—an outstanding improvement. One man, one wrench makes any adjustment.



UNIT REDUCER— with long Bronze Main Bearings and Roller-type high-speed bearings — all flood-lubricated. Herringbone gears — no side thrusts, smooth, noiseless and self-centering. A perfect gear-and-bearing combination for pumpers.

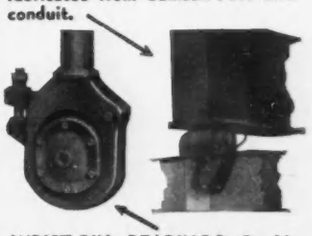
BEAM HEADS AND HANGERS. All types, Mule Head or Rein-Type Hangers. Cable or oil-field chain optional on Mule Head.





CENTER IRONS with Needle-Type Bearings — An exclusive IDECO feature — self-aligning and perfectly sealed. Pressure lubrication from Samson Post.

EQUALIZER BEARING — Needle-Type, self-aligning, totally enclosed, lubricated from Samson Post thru conduit.



WRIST-PIN BEARINGS— Double Timken bearing equipped. Alemite fittings, self-aligning, seal enclosed housings. Solid-ring Pitman Head — no bolts or pins.

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the Greeley field of Kern County, and a 10,157-foot sand in the Long Beach field of Los Angeles.

Despite these deep discoveries, the average depth of California's strikes was but 7489 feet. While this was the deepest in the nation, it represented a decline from the 7995-foot average established in 1937.

There were 8 new fields found in California, in contrast with 6 in 1937 and 7 during 1936. New sands were found productive in 5 areas.

The Miocene formation was responsible for 10 of the 13 new fields and pay levels.

Among the sensational developments last year was discovery of Eocene production in the East Coalinga-Eocene field, or Coalinga Nose, where wells were good for 30,000 barrels initial yield at less than 7000 feet.

North Texas Expands

New oil areas were uncovered in 9 North Texas counties, thereby scattering the play over a greater territory.

The district accounted for 19 new pools, and producing horizons were added in 10 areas. A substantial portion of these strikes were due to large scale prospecting that was stimulated by the spectacular growth of the K-M-A field's deep pay during the last quarter of 1937 and forepart of 1938.

Deep wells predominated among the major discoveries, and proved of sufficient importance to induce numerous large interests to return to the district after withdrawing nearly a decade ago.

The discovery of deeper production was responsible for an increase in the average depth of new strikes, a figure which has increased sharply during the last three years. Back in 1936 the average depth of North

Eight New Fields Discovered in California in 1938

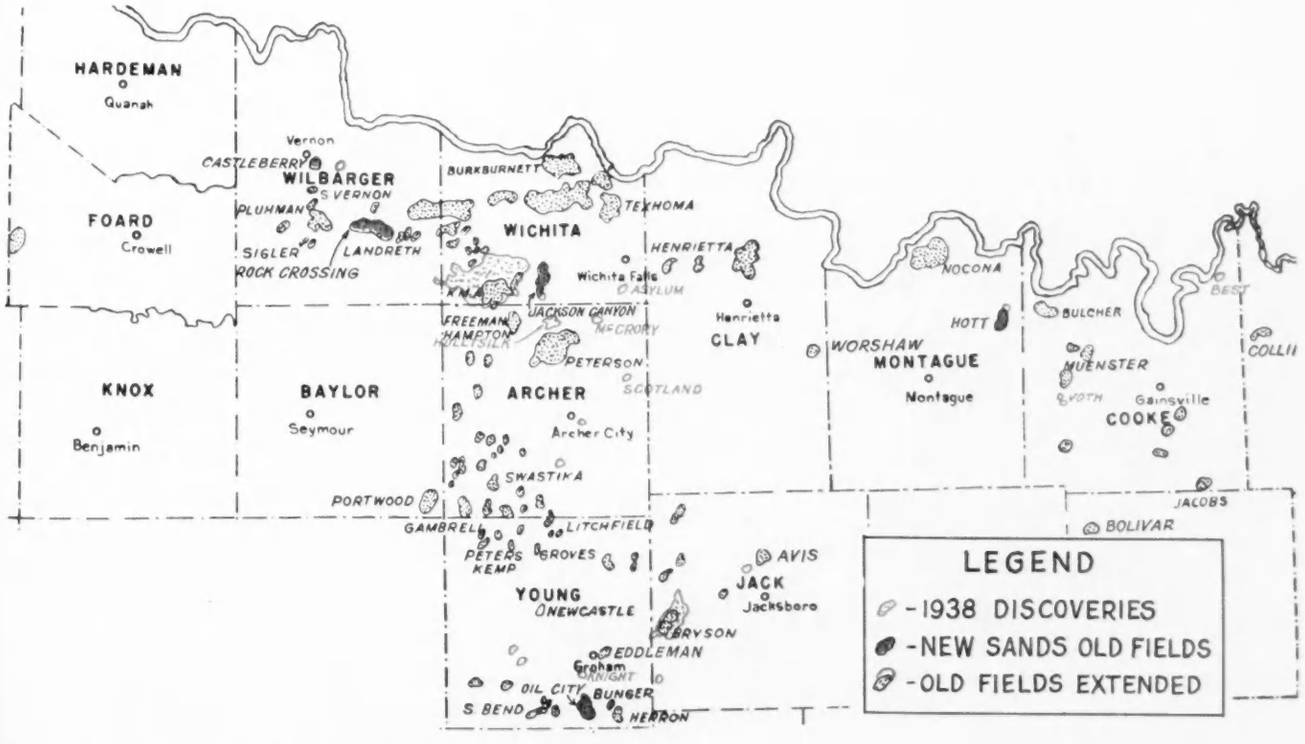
(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Montebello	Los Angeles	St. Helens Petroleum Co.'s Monterey 20	Miocene	6353	2200	38.0	Sand
Wilmington, Long Beach Harbor	Los Angeles	General Petroleum Corp.'s Comm. 3, No. 3	Pliocene	3190	249	15.5	Sand
Canfield Ranch	Kern	Standard Oil Co.'s K.C.L. 15-1, Sec. 27-30-26	Miocene	8072	196	27.5	Field
Wilmington, Long Beach Harbor	Los Angeles	Superior Oil Co.'s Comm. 1960, No. 1	Miocene	3890	5478	24.5	Sand
Wasco	Kern	Continental Oil Co.'s K.C.L. A-2, Sec. 8-27-24	Temblor, Middle Miocene	13175	3000	37.0	Field
Greeley	Kern	Standard Oil Co.'s K.C.L. 11-2, Sec. 20-29-26	Miocene	11520	15085	37.0	Sand
Torrance	Los Angeles	D. & B. Oil Co.'s Capital 1	Miocene	5275	450	28.0	Field
East Coalinga	Fresno	Petroleum Securities Co.'s Gatchell 1, Sec. 18-20-16	Eocene	6893	15000	32.0	Field
Long Beach, N. W. Extension	Los Angeles	Hilldon Oil Co.'s Dominguez 1	Miocene	7730	840	23.9	Extension
Cat Canyon District	Santa Barbara	Standard Oil Co.'s Las Flores 1, Sec. 27-9-33	Tertiary, Monterey of Miocene Age	5440	765	14.6	Field
San Fernando District	Los Angeles	Tide Water Associated Oil Co.'s Porter 1, Sec. 27-3n-16w	Pico Formation of Pliocene	5359	1100	22.5	Field
Coles Levee District	Kern	Ohio Oil Co.'s K.C.L. F-1, Sec. 10-31-25	Upper Miocene	9364	860	44.5	Field
Tupman	Kern	Richfield Oil Co.'s Tupman-Western 1, Sec. 32-30-25	Miocene	8677	3752	49.0	Field
Long Beach	Los Angeles	De Soto Oil Co.'s De Soto 1		10157	300	28.9	Sand

North Texas Again Had Many New Field Discoveries in 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Scotland	Archer	Adams O. & G. Co.'s G. Moer 1, NWc lot 21, Blk. 3, Clark & Plumb sub-div.	Strawn	4148	103	39.6	Pool
Hull-Silk	Archer	Blackwell O. & G. Co.-Helmerich & Payne (was Hull-Silk et al's) Wilson 1, NWc SE¼ ATNCL Sec. 25	Strawn	3858	1950	42	Pool
Hull-Silk	Archer	Blackwell O. & G. Co.-Helmerich & Payne, Inc.'s Wilson 2, SEc lot 6, ATNCL Sec. 25	Lower Strawn	4363	880	42	Sand
McCrory	Archer	Fain-McGaha Oil Corp.'s Wilson-McCrory 1-G, NWc SE¼ ATNCL Sec. 44	Bend	4760	280	41	Pool
	Archer	Rathke Oil Co.-C. E. Beavers' C. Cowan 1, NEc Blk. 8, Jefferson C. S. L. Sur.	Cisco Series	1130	84	38	Pool
	Archer	Shappell Oil Co.'s Grace Bell 2, SE¼ lot 27, Blk. 5, Clark & Plumb sub-div.	Cisco Series	1029	150	38	Pool
	Baylor	British-American Oil Prod. Co.'s F. C. Green 1, C SW SE T. & N. O. Sec. 215	Canyon	2605	300	37	Pool
Best	Cooke	Sinclair Prairie Oil Co.'s J. M. Best 1, NE part Thos. Toby Sur. A-1054	Strawn	4900	880	34	Pool
	Cooke	Whitfield-Pearson & Grimes' B. Voth 1, NE part W. W. Fulton Sur. A-1251	Strawn	1667	8 M. ft.	Gas	Pool
	Cooke	Whitfield-Pearson & Grimes' B. Voth 2, W central part Z. D. Fulton Sur. A-1250	Ellenberger	1793	1200	38.9	Sand
	Haskell	P. S. Kendrick et al (was Fain-McGaha Oil Corp.'s) SW¼ Sec. 104, J. A. Mathews Sur. A-858	Cross Cut	....	70	37	Pool
Pardue	Haskell	Southern Associated Oil Co. (was McMillen-Forest Dev. Corp.) A. E. Pardue 1, NWc lse., Blk. 4, M. Collum Sur. A-685	Adams Branch	2815	116	37	Pool
	Jack	Hanlon & Buchanan, Inc.'s E. M. Myers 1, SEc of N. F. Rudmose Sur. A-1803	Strawn	3453	55	40	Pool
	Jack	Harper Pet. Co.'s M. E. Norman 1, NW part of A. Pearson Sur. A-1304	Strawn	1941	36	37	Pool
Hott	Montague	Seitz-Comegys & Seitz, Inc.'s J. W. King-Conoco 1, NWc Thos. Leftwich Sur. A-434	Strawn	1756	336	36	Sand
	Throck-morton	Jones-Stasney-Groover & Rose's C. T. Brockman 1, C SE SE Sec. 95, C. L. Ry. Sur.	Caddo	4337	20	40	Pool
	Wichita	D. H. Bolin-Jim Whittington's Waggoner Bros. 1-A, near SEc SW¼ H. & T. C. Sec. 21, Blk. 7	Cisco Series	936	12	38	Sand
Jackson-Canyon	Wichita	King Oil Co.-Madden & Goldsmith's J. L. Jackson 1, SW¼ Blk. 20, League 4, Denton C. S. L. Sur.	Canyon	2657	500	38	Sand
Asylum	Wichita	Petroleum Producers Co.-Continental Oil Co.'s State Asylum 1, SW¼ Blk. 1, Cherokee C. S. L.	Bend	5375	136	42	Pool
Castleberry	Wilbarger	Phillips Pet. Co.'s M. Servatius 1, SEc H. & T. C. Sec. 78, Blk. 14	Milham	2645	753	37	Sand
Castleberry	Wilbarger	Phillips Pet. Co.'s H. C. Shive 2, NE SE NE H. & T. C. Sec. 79, Blk. 14	Canyon	3241	85	36	Sand
Rock Crossing	Wilbarger	Phillips Pet. Co.'s W. T. Waggoner 26-NN, near NE NW SE H. & T. C. Sec. 42, Blk. 4	Detrital	3765	360	40	Sand
	Wilbarger	Phillips Pet. Co.-King Oil Co.'s W. T. Waggoner 1-W, NW SE NW H. & T. C. Sec. 63, Blk. 14		2905	176	36	Pool
	Young	Brazos-Young Corp.'s H. J. Wray 1, NWc lease, A. McLennan Sur. A-180	Caddo	4257	659	40	Sand
	Young	Cosden Pet. Corp.'s D. D. Sewell 1, J. W. Bray Sur. A-1949	Caddo	3954	310	43.5	Pool
Knight	Young	Homestead O. & G. Co.-Tex.-Tor. Oil Corp.-J. McLester's J. F. Knight 1, SEc of R. Hamilton Sur. A-1321	Caddo	3775	1200	38	Pool
	Young	Kadane-Griffin Oil Co.'s A. G. Sanders 1, 425 ft. from S and 1275 ft. from E lines T. E. & L. Co. Sec. 1989	Marble Falls	4235	50	40	Pool
Oil City	Young	Mid-Continent Pet. Corp.'s R. D. Owen 11-M, SW¼ Sec. 38, Brazos Indian Reserve Sur. A-2245		2420	65	37	Sand
	Young	A. N. Munhall et al's Ed. Johnston 1, A. McLennan Sur. A-180	Marble Falls	4616	75	38	Pool



Texas' discoveries was but 1811 feet. This rose to 2596 feet in 1937, and in 1938 jumped to 3190 feet.

K-M-A entered 1938 with a rapidly expanding drilling program that was launched following a series of extensions to the original 3800-4000-foot Strawn sand area. The field became the most active single drilling center in the nation when at its peak level last May. Curtailment was forced because of restricted markets and inadequate pipe line facilities. The introduction of 5-day production weeks and lower crude prices also were effective in holding back projected drilling. K-M-A was credited with 30,000 acres of proved oil lands at the close of 1937, and extensions in 1938 boosted this to about 40,000 acres.

The productive limits of the K-M-A deep area are considered virtually defined, except for the extreme southwest flank, which gives promise of expanding due south to give Archer County greater representation. The area has more proved undrilled locations that will be drilled eventually than any known field within the state, excepting East Texas. Ultimately K-M-A will have between 2000 and 2500 wells. At the close of 1938 there were 861 completed Strawn sand tests.

The Strawn sand accounted for the greatest number of North Texas discoveries, having 8 of the total of 29. Next was the Caddo with 4, and the Canyon and Cisco series with 3 strikes each.

First Canyon lime production for Wichita County was uncovered in the old Jackson shallow field.

Baylor County participated for the first time in Canyon production.

The Bend lime, heretofore restricted to the south portion of the district, was found productive in the southeast corner of Wichita County through completion of a small well at 5375 feet. Unless more attractive production results from pending tests, this record depth level for the region will not justify drilling.

Rocky Mountains

Rocky Mountain states (Colorado, Montana, Wyoming) had 10 discoveries in 1938, compared with 5 in both 1937 and 1936. Eight of its strikes were new fields, while two were new horizons in previously productive areas.

Wyoming led in number of discoveries, accounting for 8 of the 10, while Colorado and Montana had one each.

The average depth of new producing spots found in 1938 was 3623 feet, in contrast with 3473

Wyoming Leads Rocky Mountain 1938 Discoveries

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Colorado							
Bondad	La Plata	Nick Spatter's Bryce 1, SW SW SW 31-43n-9w		2250	2½ M. ft.	Gas	Field
Montana							
North Cut Bank	Glacier	Yukon Oil Co.'s Lungren 1, SE SE SW 23-37n-5w	Moulton	2560	70	38.7	Field
Wyoming							
Big Hollow	Albany	J. R. McConnell's Thomas 1, NW SE 6-15n-75w	Muddy	920	25	18	Field
Oil Spring	Carbon	Cunningham Oil Co.'s U. P. Cronberg 1, NE SE NE 7-23n-79w	Sundance	2287	55 M. ft.	Gas	Field
Mahoney	Carbon	Sinclair-Wyoming Oil Co.'s Mahoney 3-C, CSE NW 34-26n-88w	Tensleep	4486	700	34.4	Sand
Beaver Creek	Fremont	Stanolind Oil & Gas Co.'s Govt. 1, CSE SE 3-33n-96w	Sundance	8500	8 M. ft.	Gas	Field
Cole Creek	Natrona	General Petroleum's Govt. 1, CNW NW SE 21-35n-77w	Lakota	8020	250	32.7	Field
Cody	Park	Paul Stock's Rousseau 1, SE SE NE 20-53n-101w	Embar	4809	240	20.5	Sand
Big Piney	Sublette	Wyoming Petroleum Corp.'s Budd 1, CNE NE 10-29n-113w	Adaville	700	10 M. ft.	....	Field
Dry Piney	Sublette	Texas Co. & Frontier Petroleum Corp.'s Unit 1, SE SE SW 1-22n-114w	Adaville	700	10 M. ft.	....	Field

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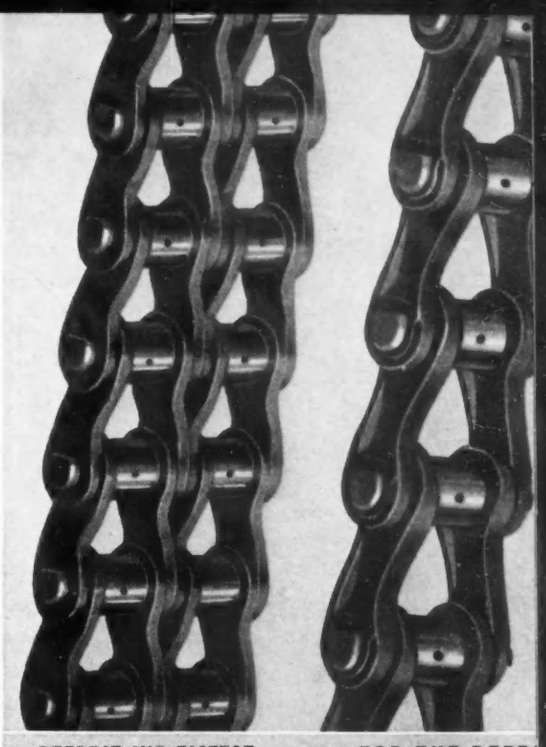

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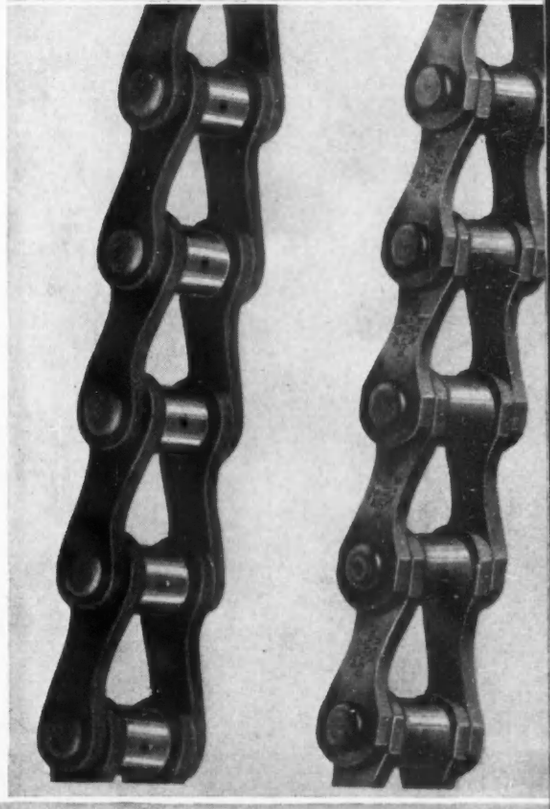

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feet during the previous year. However, the area turned up with a 3721-foot average back in 1936.

Though of small initial production, probably the most important Rocky Mountain discovery during the year was finding of light oil at Cole Creek, near Casper, Wyoming. Cole Creek is a deeply buried basinward structure (9020 feet). The discovery presages a possible wildcat play on a basinward trend in the state this year. Some 16 blocks embracing 750,000 acres lie in this direction, and some are likely to be tested.

Louisiana Coast Has Best Year

The best year in the history of the Louisiana Gulf Coast may be said of 1938. There were 19 new fields found, whereas 1937 recorded 15 and 1936 but 5. The number of new producing horizons in old fields took a much sharper gain, however, there being 44 new pay levels proven productive, compared with 19 in 1937 and 13 in the preceding year.

The average depth of discovery wells in the area increased to 7400 feet, which ranked second only to California. Further indication of the success of deep drilling in the area is found in the completion of the world's deepest producing well at 13,266 feet. This well opened the West Dulac field in Terrebonne Parish. In addition, six other discovery wells were completed below 10,000 feet.

The Miocene formation was the completion site of 40 of the discovery wells, while the Oligocene was responsible for 20 of the discoveries.

From a new development standpoint the discovery of the Bancroft field was probably the most important. This field is producing from the Sparta, and materially enhanced the prospects of a new trend play getting "hot" during 1939. The field is expected to produce 10,000,000 barrels according to present estimates, which probably will be revised upward as the field is developed.

Texas Gulf Coast

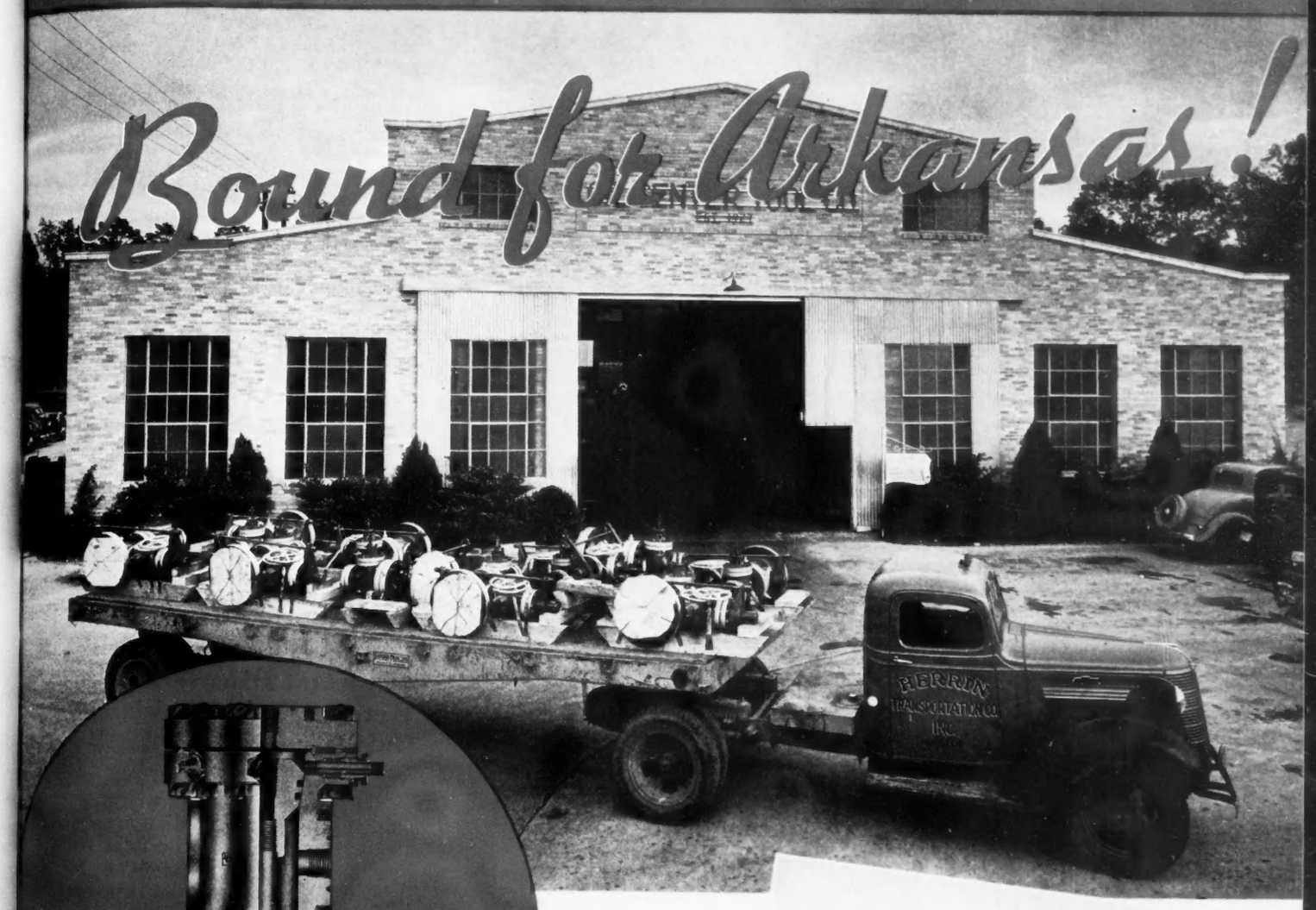
The Texas Gulf Coast area recorded 10 new fields and 16 new producing levels in old pools dur-

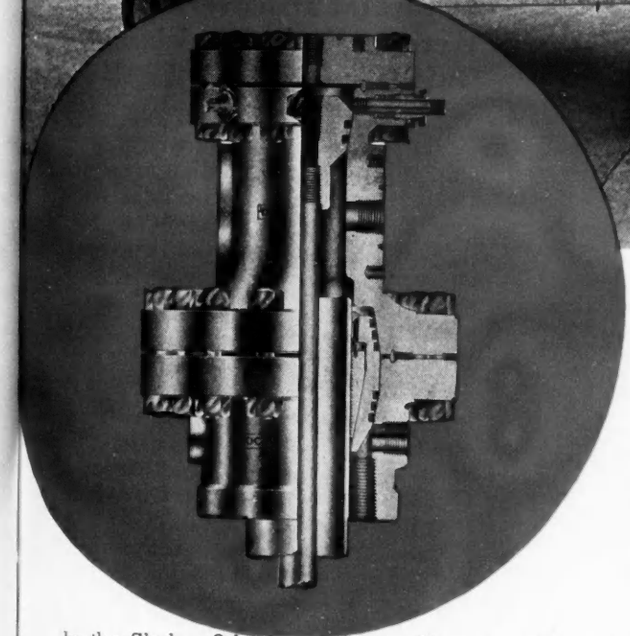
South Louisiana Received 19 New Fields in 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Raceland	Lafourche	Amerada Petroleum Corp.'s South Coast Corp. 1, 34-15s-19e	Miocene	10183–208	733	34.9	Field
Timbalier Bay	Lafourche	Gulf Oil Corp.'s State PP 3, 36-23s-21e	Miocene	6955–63	336	32.8	Field
Creole	Cameron	Superior Oil Co.'s State 1, in Gulf of Mexico, 4-15s-8w	Miocene	5110–30	240	33.9	Field
Woodlawn	Jefferson Davis	Union Sulphur Co.'s Calcasieu National Bank 1, 12-9s-8w	Oligocene	8286–88	43	51	Field
South Baton Rouge	East Baton Rouge	Louisiana Crusader Oil Co.'s Duplantier, 65-7s-1w	Miocene	6472–77	520	33.2	Field
Bancroft	Beauregard	Republic Prod. Co.'s Lutcher Moore 1, 10-6s-13w	Sparta	7575–80	Gas	Gas	Field
South Crowley	Acadia	Humble Oil & Refining Co.'s Boyd and Finch 1, 22-10s-1e	Miocene	7308–15	35	35.2	Field
West Dulac	Terrebonne	Fohs Oil Co.'s Buckley Bourg 1, 17-19s-17e	Miocene	13254–266	125	47	Field
Jefferson Island	Iberia	The Texas Co.'s Bayless & Jones 1, 58-12s-5e	Miocene	8170–8210	500	37.5	Field
West Gueydan	Vermilion	Magnolia Petroleum Co.'s Ferguson 1, 5-17s-2w	Miocene	7140–50	75	62	Field
Convent	St. James	Continental Oil Co.'s Realty Operators 1, 17-12s-5e	Oligocene	6358–64	81	48.1	Field
Chacahoula	Lafourche	Sun Oil Co.'s Dibert, Stark & Brown 1, 70-15s-15e	Miocene	7240–53	360	32.1	Field
Grand Bay	Plaquemines	Gulf Oil Corp.'s Grand Prairie Levee District 1-A, 6-20s-19e	Miocene	6132–51	504	27.2	Field
North Tepetate	Acadia	Atlantic Refining Co.'s Klumpp 1, 12-7s-2w	Oligocene	7960–70	83	55.8	Field
Chalkley	Cameron	Humble Oil & Refining Co.'s Hanszen 2, 9-12s-6w	Oligocene	8562–68	32	....	Field
S. Houma	Terrebonne	Shell Petroleum Corp.'s Peters 1, 73-18s-18e	Miocene	10300–310	444	36.9	Field
West Lake Verrett	St. Martin	Shell Petroleum Corp.'s Burdin 1, 15-14s-12e	Oligocene	8017–20	129	32.8	Field
Golden Meadows	Lafourche	The Texas Co.'s LaTerre 1, 1-20s-21e	Miocene	8500–10	227	37.4	Field
Lake Mongouloui	St. Martin	The Texas Co.'s State 6, 10-10s-9e	Oligocene	9675–95	32	....	Field
Charenton	St. Mary	Pan American's Ecure 1-A, 11-13s-9e	Miocene	2620–40	350	22.6	Sand
Garden Island	Plaquemines	The Texas Co.'s State 25, 38-23s-33e	Miocene	5782–5810	1492	37.2	Sand
Leeville	Lafourche	The Texas Co.'s L. L. E. Leeville 63, 27-21s-22e	Miocene	5633–83	932	36.8	Sand
Lafitte	Jefferson	The Texas Co.'s L. L. E. Lafitte 4	Miocene	8035–90	1495	33.3	Sand
Jennings	Acadia	Superior Oil Co.'s J. Clements 1, 46-9s 2w	Oligocene	6954–77	431	39.6	Sand
Sorrento	Ascension	Pan American's United Lands 9, 15-10s-4e	Miocene	898–926	384	23.5	Sand
Big Lake	Cameron	Union Sulphur's Hebert 2, 18-12s-8w	Miocene	6779–83	225	40.7	Sand
Jennings	Acadia	Superior Oil Co 's Clement 2	Oligocene	6791–6827	547	40	Sand
Valentine	Lafourche	Pan American's Harange 16	Miocene	5176–90	Gas and dist.	50.1	Sand
Woodlawn	Jeff Davis	Union Sulphur's Calcasieu National Bank 2, 12-9s-6w	Oligocene	8894–98	300	36.7	Sand
Charenton	St. Mary	Pan American's Veeder-South 5, 11-13s-9e	Miocene	1124–38	103	20.4	Sand
Hackberry	Cameron	Superior Oil Co.'s Benson-Vincent 1, 30-12s-10w	Oligocene	6235–40	Gas	Gas	Sand
Valentine	Lafourche	Pan American's Abribat 1, 10-17s-20e	Miocene	3835–53	225	32.2	Sand
Lake Long	Lafourche	Fohs Oil Co.'s State 4, 77-17s-19e	Miocene	10416–419	60	51	Sand
Charenton	St. Mary	Fifteen Oil Co.'s Parro 1, 31-13s-10e	Miocene	6658–93	182	43	Sand
Choctaw	Iberville	Louisiana Crusader Oil Co.'s Schwing 2, 29-8s-11e	Oligocene	8250–59	660	37.4	Sand
Abbeville	Vermilion	Continental Oil Co.'s Motty 1, 66-12s-3e	Miocene	6424–28	185	38.7	Sand
Sorrento	Ascension	Pan American Prod. Co.'s United Lands 10, 15-10s-4e	Pliocene	876–901	175	24.1	Sand
Sweet Lake	Cameron	Pure Oil Co.'s Stanolind Fee 7, (wo) 12-13s-8w	Miocene	6362–67	313	26.2	Sand
Hackberry	Cameron	Superior Oil Co.'s Benson Vincent 2	Oligocene	6525	469	38	Sand
Valentine	Lafourche	William Helis' Valentine Plantation 2, 3-17s-20e	Miocene	7500	1050	38	Sand
Bayou Des Allemands	St. Charles	Amerada-Louisiana Land & Exploration Co.'s State 4, 15s-20e	Miocene	9463	192	62	Sand
Lirette	Terrebonne	Fohs Oil Co.'s State Bay Baptiste, 41-19s-19e	Miocene	11178	55	49.5	Sand
Bancroft	Beauregard	Republic Prod. Co.'s Columbia Land & Timber Co. 1, 16-6s-13w	Cockfield	7350	500	41.4	Sand
Valentine	Lafourche	Pan American's Community B-2, 58-17s-20e	Miocene	9325	288	32.7	Sand
Venice	Plaquemines	Tide Water's Buras Levee Board 1	Miocene	5658	228	....	Sand
New Iberia	Iberia	The Texas Co.'s Gralino 4, 25-12s-7e	Miocene	6159	740	29.6	Sand
Gibson	Terrebonne	Shell's Kuntz 1, 40-17s-15e	Miocene	8887	168	37.7	Sand
Bay St. Elaine	Terrebonne	The Texas Co.'s State 18, 18-22s-18e	Miocene	6834	386	21.5	Sand
Lirette	Terrebonne	Humble Oil & Refining Co.'s Verret 1, 32-19s-19e	Miocene	8460	43	47.7	Sand
N. Crowley	Acadia	Humble Oil & Refining Co.'s Ohlenforst 1, 45-8s-1e	Oligocene	8613	777	35	Sand
Choctaw	Iberville	Louisiana Crusader Oil Co.'s Schwing 3, 29-8s-11e	Oligocene	8396	680	38.7	Sand
Jeanerette	St. Mary	Herton Oil Co.'s Roanes Sugar's 1-A, 36-13s-9e	Miocene	9960	440	39.5	Sand
S. Roanoke	Jeff Davis	Continental Oil Co.'s Sturdivant 1, 36-10s-4w	Oligocene	9880	84	55.6	Sand
N. Crowley	Acadia	Humble Oil & Refining Co.'s Federal Land Bank 3, 34-8s-1e	Oligocene	7198	455	33.6	Sand
Lake Long	Lafourche	Fohs Oil Co.'s State 5, 65-17s-19e	Miocene	10236	908	37.4	Sand
Raceland	Lafourche	Tide Water's South Coast 1, 33-15s-19e	Miocene	7190	125	....	Sand
Venice	Plaquemines	Tide Water's Buras Levee 2	Miocene	3634	312	40.5	Sand
Bayou Des Allemands	St. Charles	Amerada's Gheens 1, 56-16s-20e	Miocene	7254	618	35.4	Sand
Jeff Island	Iberia	The Texas Co.'s State 1, 12s-5e	Miocene	7837	250	34	Snad
Lake Barre	Terrebonne	The Texas Co.'s State 42, 40-21s-19e	Miocene	10520	20	....	Sand
Villa Platte	Evangeline	Continental's Tate 1, 47-3s-2e	Oligocene	8905	264	61.6	Sand
North Tepetate	Acadia	Atlantic's Klumpp 2, 12-7s-2w	Oligocene	8504	150	55.4	Sand
Tepetate	Acadia	Continental's Homeseekers 1-A, 29-7s-2w	Oligocene	9220	135	33.4	Sand

O-C-T TREES BY THE TRUCKLOAD





Left—Cross section view of O-C-T type C-7X Slip Suspension Casing Head with type T-16 Tubing Head flanged above. Hanger encloses 3-segment slips, each of which is provided with an eye bolt that extends up through top of hanger. Eye bolts, which facilitate lowering hanger assembly to seat through preventer, are removed and the holes welded up when casing is suspended.

Right—Typical O-C-T Tree in the Shuler, Arkansas, field.

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Using this equipment, the standard completion method is, briefly, as follows: Hole is drilled for the oil string which is set and cemented through oversize flanged blowout preventer equipment installed above the C-7X Casing Head body. The hanger, which encloses 3-segment slips, is lowered through the blowout preventer equipment to its seat in the casing head body to suspend the casing at any desired point. After removing the blowout preventer equipment, the last joint of casing is cut off slightly above the hanger and welded thereto. Then, with the type T-16 Tubing Head replacing the oversize flanged blowout preventer equipment, and with blowout preventer equipment installed above the tubing head, the well is drilled in and tubing is run and landed. Lock down screws are made up to hold the tubing hanger in the head, blowout preventer equipment is replaced by the top half of the Christmas tree, and the well is washed in.

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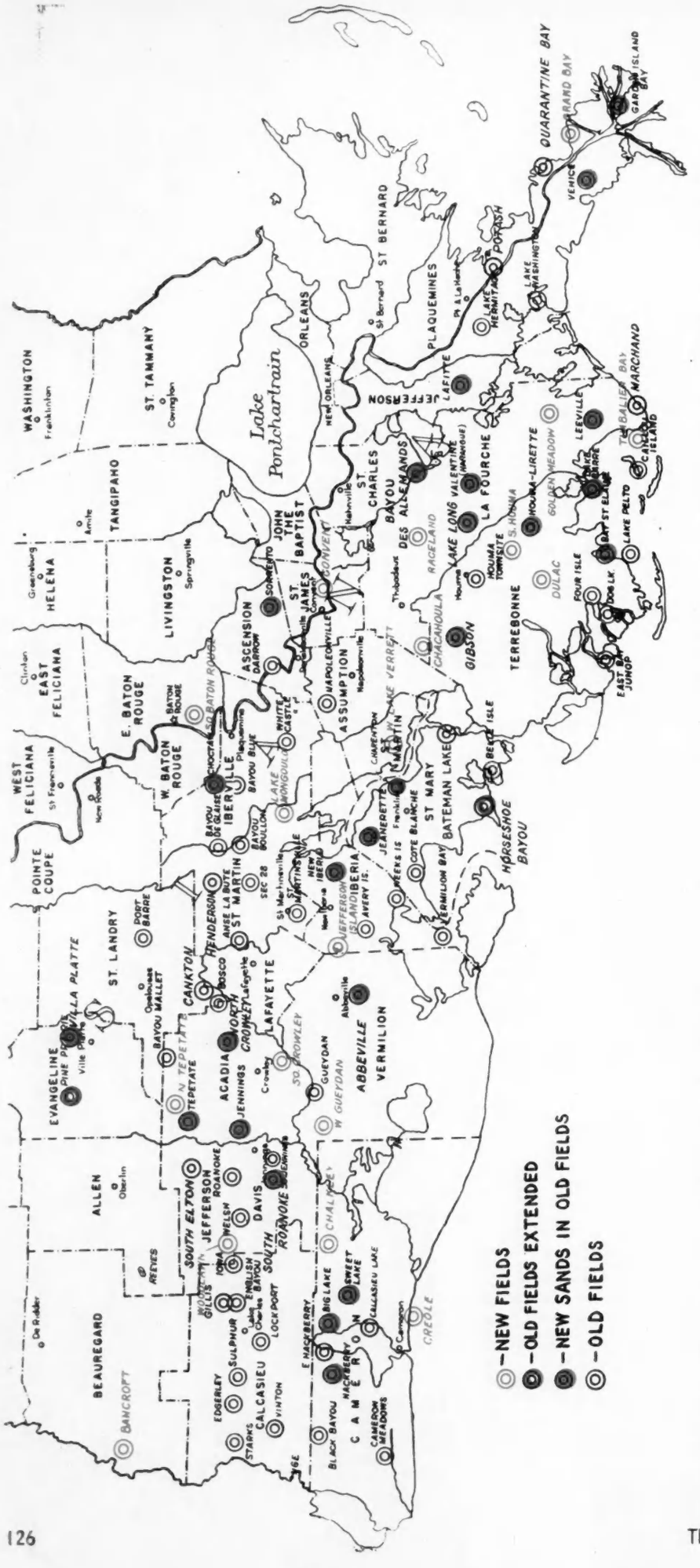


ing 1938. This was a decrease from the 15 fields and 18 sands found in 1937.

There was a definite trend toward deeper drilling in the area, the average depth of its new producing spots being 6921 feet, the fourth deepest in the United States. This represented an increase from an average depth of 6741 feet in 1937 and 5970 feet in 1936.

Of the 26 new discovery producing wells, 9 were completed in the Frio formation, 5 in the Miocene, 4 each in the Yegua and Cockfield, and 2 in the Wilcox sand.

The Palacios field of Matagorda County was proven productive below 10,660 feet, and was the deepest discovery.

The discovery of Wilcox sand production was considered of much importance, as it is believed that this formation may prove productive all along the Conroe trend.

Cedar Point in Galveston Bay

Important Discoveries Were Made in Louisiana Gulf Coast During 1938

was the outstanding discovery in 1938. It is estimated the field will produce 36,000,000 barrels of oil.

Harris County was the principal contributor of discoveries, furnishing 3 new fields and 5 new horizons.

North Louisiana-Arkansas

Discovery of four new fields in Arkansas, including three in the deep Permian formation, enabled the state to continue the revival that got underway in 1937.

One new field was discovered in adjoining North Louisiana during the year. This was in contrast with 4 opened during 1937. However, North Louisiana found new producing strata in three of its old fields.

The one new field in North Louisiana was that of Shreveport, which is expected to cover approximately 3000 acres eventually.

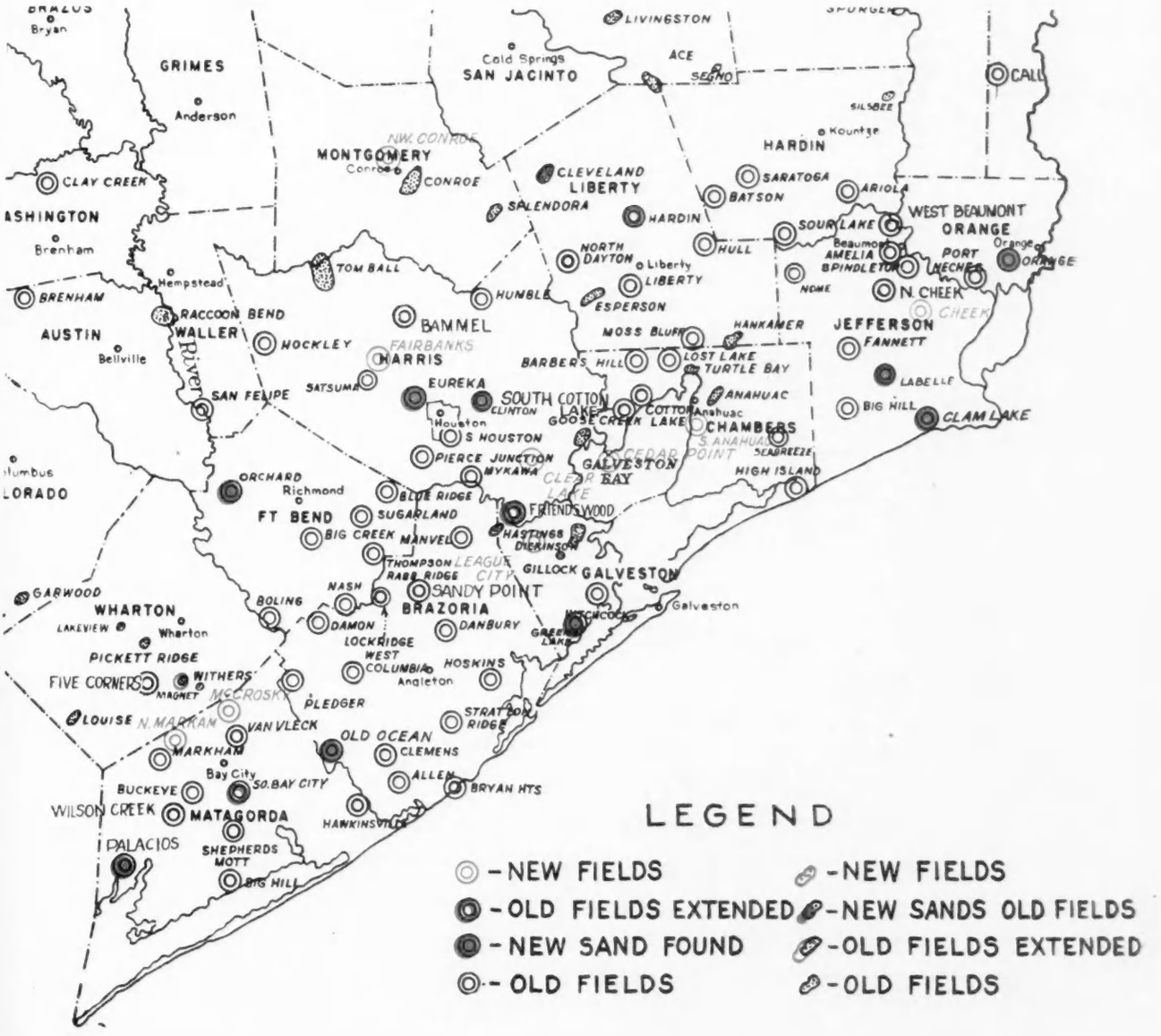
Besides this discovery, the lower Marine horizon was found productive of gas and distillate in the old shallow Shongaloo field, Webster Parish.

The Cotton Valley field, Webster Parish, was enlarged 1½ miles southeast and found productive of oil in the lower Marine on the south, northwest and southeast flanks during 1938.

Ten New Fields for Texas Gulf Coast During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Cheek	Jefferson	Glenn H. McCarthy's Broussard Trust 1, C. Hillibrandt Sur.	Frio	7718–23	122	40	Field
Fairbanks	Harris	Amerada-Stanolind's Mills 1, A. Larson Sur.	Cockfield	6838–53	675	38.8	Field
Cedar Point	Chambers	Standard of Texas and Salt Dome Oil Corp.'s State 1, in Galveston Bay.	Frio	5958–67	650	36.2	Field
McCrosky	Matagorda	Pierce Estate's Fee 1, I. & G. N., Sec. 7.	Frio	6620–24	200	33	Field
Eureka	Harris	Jack Frazier's Vollmer-Neiman 1, R. Reinerman Sur.	Upper Saline Bayou	7697–7722	616	34	Field
Clear Lake	Harris	West Production Co.'s Sowden 1, J. Lindsey Sur.	Frio	5790–5805	2 mil. ft.	Gas	Field
North Markham	Matagorda	Ohio Oil Co.'s Cornelius 1, P. C. Yarborough Sur.	Frio	7727–30	132	34.2	Field
South Anahuac	Chambers	Salt Dome Oil Corp.'s Ogden 1, E. Douthit Sur.	Frio	7515–25	Gas	Gas	Field
League City	Galveston	Midwest Royalty Co.'s Lobit 1, Perry & Austin Sur.	Frio	9092–9106	301	42.3	Field
N. W. Conroe	Montgomery	Houssh-Thompson's Clary 1, W. S. Allen Sur.	Cockfield	4736–39	Gas	Gas	Field
Old Ocean	Brazoria	Harrison & Abercrombie's Copland and Osburne 1, Breen Sur.	Frio	10660–670	307	54	Sand
Palacios	Matagorda	Sun Oil Co.'s Bayshore Farms 1, L. Goodwin Sur.	Frio	9245–75	350	54	Sand
Clinton	Harris	Stanolind Oil & Gas Co.'s Barraco 1, Reels and Trobough Sur.	Miocene	3810–18	408	22	Sand
Labelle	Jefferson	Sun Oil Co.'s Broussard and Hebert 3, B. Blackmon Sur.	Frio	8600	1066	45.6	Sand
Orange	Orange	Union Producing Co.'s Lutcher Moore 2, J. Dyson Sur.	Frio	5960	587	41.7	Sand
Segno	Polk	Gulf Oil Corp.'s Regan 2, I. & G. N. No. 15.	Wilcox	8163–68	625	37	Sand
Cleveland	Liberty	Gulf Oil Corp.'s Kirby C-21, J. Pleasant Sur.	Wilcox	9090–9100	Gas and dist.	....	Sand
Cedar Point	Chambers	Standard Oil of Texas, State 1-94, in Galveston Bay.	Miocene	4413	263	29.6	Sand
Clinton	Harris	Stanolind Oil & Gas Co.'s Sanders 1, Reels and Trobough.	Miocene	3832	154	....	Sand
Fairbanks	Harris	Stanolind Oil & Gas Co.'s Look 1, S. Lewis.	Yegua	6956	348	36	Sand
Orange	Orange	Red Bank Oil Co.'s Michel 7, W. Dyson.	Oligocene	5576	218	41.8	Sand
Fairbanks	Harris	Union Producing Co.'s Goodykoontz 1, W. S. Powell.	Yegua	7185	Gas	Gas	Sand
Clam Lake	Jefferson	Shell Petroleum Corp.'s McFaddin 2, S. A. Pace.	Miocene	3855	153	13.5	Sand
Green's Lake	Galveston	Sun Oil Co.'s Houston Farms 2, D. Buckley.	Miocene	6945	29	52	Sand
Eureka	Harris	Jack Frazier's L. Lackner 1, H. Reinerman.	Yegua	8096	476	39.5	Sand
Orchard	Ft. Bend	Gulf Oil Corp.'s Moore 58.	Yegua	7721	44	....	Sand



North Louisiana joined the ranks of deep producing areas during the year, its average depth of discovery wells being 6969 feet, compared with 5645 feet the previous year. This was the largest increase in average depth of any district in the nation.

Discovery of gas-distillate production from the lower Trinity series on both the east and west flanks of the East Texas field doubled the number of deep pools in the Woodbine area. The two strikes will provide an abundance

Four New Arkansas Fields Opened in 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Atlanta	Columbia	Tide Water Associated Oil Co.'s & Seaboard's J. T. Beene 1, 15-18-19	Permian	8332	37 hour	44.6	Field
Magnolia	Columbia	Kerr-Lynn Oil Co.'s Barnett 1, 14-17-20	Permian	7664	22 hour	37.2	Field
Falcon	Nevada	Texas-Canadian Oil Co.'s Stocks 1, 9-15-22	Nacatoch	1402	50 day	14.8	Field
Village	Columbia	Standard Oil of Louisiana, W. P. Phillips 1, 15-17-19	Permian	7430	20 hour	38	Field

But One New North Louisiana Field During 1938

(Includes new fields and new sands in old fields)

Field	Parish	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Shreveport	Caddo	R. E. Allison's Ellerbe 1, 27-18n-14w	Glen Rose	6025	499	43.8	Field
Blue Lake (West Zwolle)	Sabine	J. G. Sutton Oil Co.'s Sabine Lumber Co. 1, 23-7n-14w	Paluxy	4208	300	37	Sand
Shongaloo	Webster	Magnolia Petroleum Co.'s Sexton 1, 32-23n-9w	Lower Marine	9010	Gas-Dist.	...	Sand
Cotton Valley	Webster	Stanolind Oil & Gas Co.'s Pardee 1, 36-21n-10w	Lower Marine	8635	876	42	Sand
Logansport	DeSoto	Hunter Co.'s Mrs. E. P. Parker 1, 26-12n-16w	Glen Rose	5039	5 M. ft.	Gas	Extension

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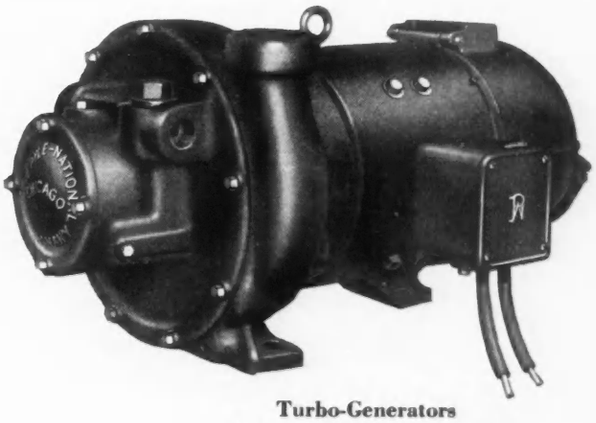

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From 1 KW to 12 KW

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STAINLESS STEEL VALVES
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Five East Texas Discoveries During 1933

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Lone Star	Cherokee	J. R. Bunn & Chapman Minerals Corp.'s C. M. Bounds 1, NE part 128-acre lease, W. H. Walters sur.	Woodbine	4015	268	35.2	Pool
Willow Springs	Gregg	Humble & Gulf's E. D. Robertson 1, 11.4-acre lease, Marshall Mann sur.	Pettit	7286	5 mil. and 36 bbl. dist.	55	Pool
Navarro Crossing	Houston	Humble's H. H. Dailey 1, NWc of 1000-acre lease, J. L. Reviere sur. A-49	Woodbine	5893	205	34	Field
Buffalo	Leon	J. K. Hughes Oil Co.-T. J. Tucker's Sam Bane 1, N cor. of Jas. Webb sur.	Woodbine	5520	172	27.1	Sand
Chapel Hill	Smith	Hunt Oil Co.'s S. H. Bradley 1, NW part 100-acre lease, T. P. Payne sur. A-763	2nd Glen Rose	7528	10 mil. and 250 bbls. dist.	63.8	Pool

East Texas Border Counties—Discoveries During 1938

(Includes new fields and new sands in old fields)

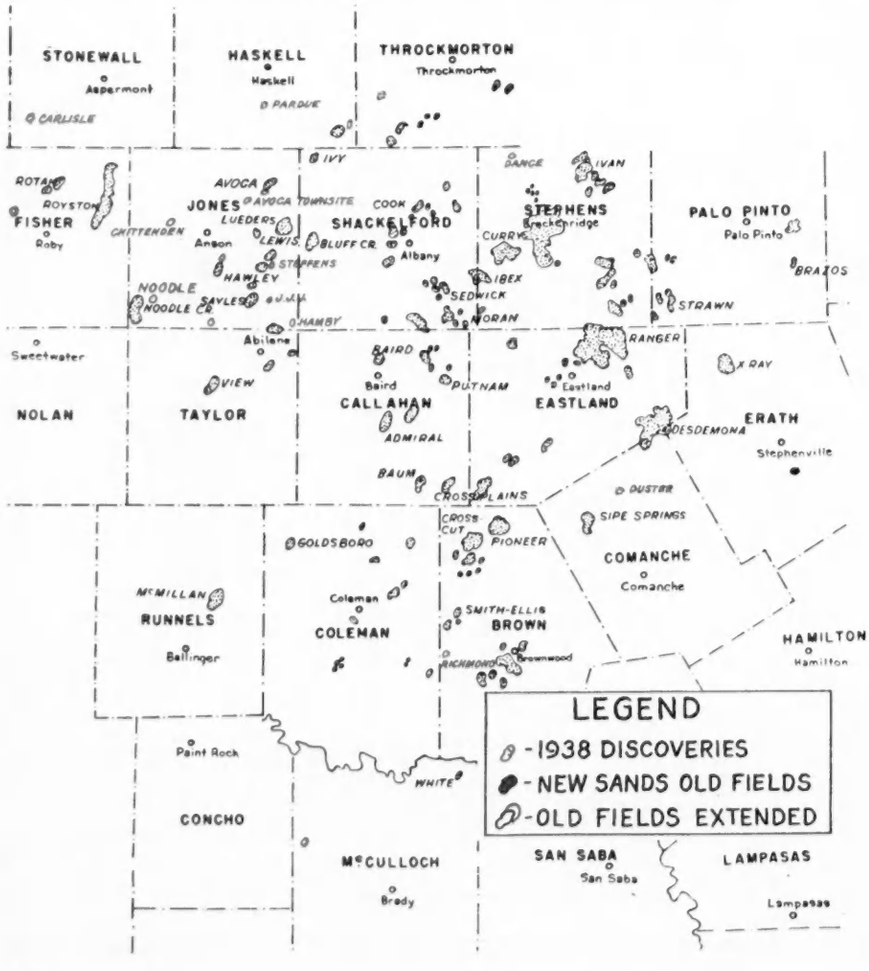
Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Bethany	Panola	The Texas Co.'s Claude Adams 1, Thos. Cox Sur.	Glen Rose	5600	3 M. ft.	Gas	Sand
Jefferson	Marion	Arkansas-Louisiana Gas Co.'s Pitts 1, Chas. Lockhard Sur.	Hill	6200	30 M. ft.	Gas	Extension
Joaquin	Shelby	Pundt et al's Pickering Lumber Co.'s W. M. Snider Sur.	Glen Rose	5060	200	47.4	Sand

of high-pressure gas for lifting operations in the East Texas field.

The East Texas district had 4 new fields and 3 producing sands in old fields found during 1938, which is practically the same level it has maintained during the last three years.

There was a considerable increase in the average depth of its completions, however. In 1938, the discovery wells were completed at an average of 5689 feet, compared with 5547 feet in 1937 and 4915 feet during 1936.

Jones County Leads West Central Texas



West Central Texas Grows

A remarkable increase in new fields was shown by West Central Texas, which reported 17 new producing structures during the year. Both 1937 and 1936 had seen but 6 fields found. The discovery of 5 new producing horizons in older fields also was a gain.

The average depth of the new production was 2746 feet, a gain from 2555 feet in 1937 and 2416 feet in 1936.

Jones County was the leading district, having 8 new fields and two new sands.

Kansas Successful Again

Although a shift in crude oil buying from the Mid-Continent area to the Illinois Basin cut the Kansas drilling campaign almost in half in 1938, the state continued to rank high in discoveries. A total of 43 new fields were found, and 7 new horizons in old fields. This compares with 52 and 71 new fields in 1937 and 1936 respectively.

The average producing depth of 1938 discoveries was slightly greater than in the preceding year, being 3396 feet compared with 3293 feet.

The Arbuckle lime formation accounted for 24 of the Kansas discoveries. In second place was the Kansas City lime with 8 new producing fields. Next came the Wilcox sand with 4, Lansing Viola

Kansas Added 43 New Fields During 1938

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Balta North	Russell	Phillips Pet. Co 's Miller 1, C NW SW 29-13-14w	Arbuckle	3317	829	40.7	Field
Big Creek East	Russell	Aylward's Solback 1, SE SE NE 31-14-14w	Arbuckle	3151	901	41.2	Field
Blue Hill	Ellis	Davis' Smith 1, SW NW NE 11-12-16w	Wilcox	3391½	225	38	Field
Bonham	Stafford	National Ref. Co.'s Bonham 1, SWC 28-25-12w	Arbuckle	4212	330	41.5	Field
Buehler	Reno	Amerada Petroleum Corp. and Westgate-Greenland's Johns 1, SEC 25-22-5w	Wilcox	3902	912	37.5	Field
Burnett South	Ellis	Duwe & Farris' Hadley 1, SE NE SE 12-11-18w	Arbuckle	3333	1266	43.1	Field
Dunbar	Cowley	Spencer & Phelps' Dunbar 1A, SE NE NE SW 29-30-5e	Kansas City	2265	658	36	Field
Eastborough North	Sedgwick	National Ref. Co.'s Trustee 1, SEC NE 8-27-2e	Viola	3257½	420	36.2	Field
Ellinwood West	Barton	Crown Petroleum Co.'s Schartz 1, SW SE NW 7-20-11w	Arbuckle	3352	473	41.8	Field
Fike	Rooks	Texokana Oil Co.'s Fike 1	Kansas City	3296	187	37.1	Field
Fischer	Stafford	Cardinal Oil Co.'s Fischer 1, SW NW SW 31-21-12w	Arbuckle	3650	783	42.1	Field
Foster	Russell	Gorham Assn. et al's Foster 1, SW NW NE 19-15-15w	Arbuckle	3352	341	41.3	Field
Frog Hollow	Cowley	Blair's Dunlap 1, SW NW NE 21-32-5e	Burgess	3062½	352	34	Field
Graber	McPherson	Continental Oil Co.'s Huxman 6, NE NW NW 29-21-1w	Wilcox	3343	582	39	Field
Greenvale	Russell	Jones & Shelbourne's Kuhnle 1 SEC NW 4-15-12w	Kansas City	3050	945	38	Field
Habiger Southeast	Rice	Carlock & Kaiser's Heinz 1, NWC SE 8-18-10w	Kansas City	3019	1118	37.9	Field
Hall	Russell	Mid-Continent Petroleum Corp.'s Rogg 1, NWC NE 32-14-13w	Kansas City	2911	1748	36.8	Field
Heinz	Rice	Transwestern Oil Co 's Habiger 1 "C," SWC NE 8-18-10w	Arbuckle	3265	186	42	Field
Hoisington	Barton	Thayer Drilling Co. & Brouk's Soderstrom 1, SEC NW 21-17-13w	Lansing	3267	1065	34	Field
Kruse	Rooks	Hall's Kruse 1, SEC NE 3-10-16w	Kansas City	3121	169	36	Field
Lake City	Barber	Pryor & Lockhart's Gant 1 "C," SW NEC 18-31-13w	Arbuckle	4611	1211	41	Field
Leesburgh	Stafford	Continental Oil Co 's Fair 1, C N½ N½ SW 12-25-13w	Arbuckle	4163	853	41.9	Field
Letsch South	Russell	Coralena Oil Co.'s Hefferman 1, NE SE SW 34-14-13w	Kansas City	2926	804	38	Field
Lindsborg	McPherson	Carter Oil Co.'s Hoglund 1, SWC NW 8-17-3w	Viola	3373	345	36	Field
Max	Stafford	Rowley's Sittner 1, SEC NE 35-21-12w	Arbuckle	3575	1230	42.6	Field
Morel	Graham	Continental Oil Co.'s Morel 1, C E½ E½ NE 15-9-21w	Arbuckle	3721	2105	43	Field
Michel	Russell	Phillips Petroleum Co.'s Michel 2. NEC 36-14-14w	Dodge	2877	72	32	Field
Mound Ridge (Gas Pool)	McPherson	Darrah et al's Decker 1. SWC SE 12-21-2w	Chat	3561	5MG	.....	Field
Nunn	Finney	Atlantic Ref. Co.'s Nunn 1, C SE NE 27-21-34w	Miss. Lime	4718	604	33.6	Field
Odin	Barton	Price's Wondra 1, NWC NE 10-17-12w	Gorham	3289	725	31	Field
Rattlesnake	Stafford	Atlantic Ref. Co.'s Wise 1. SW NWC 13-24-14w	Arbuckle	4131	1494	41.6	Field
Richards	Ellis	Duwe & Farris' Richards 1, SE SW NW 5-11-18w	Lansing	3373	941	36.1	Field
Roxbury	McPherson	Western Kansas Oil Co.'s Union 1, NW NE SW 18-17-1w	Kansas City	2920	828	37.2	Field
Schneider	Russell	Western Kansas Oil & Ref. Co.'s Schneider 1, NEC NW 35-15-14w	Arbuckle	3355	1861	42.8	Field
Schroeder	Ellsworth	Cities Service Oil Co.'s Schroeder 1, NW NE NW 29-17-9w	Arbuckle	3215	2644	42.6	Field
Sittner South	Stafford	Stanolind Oil & Gas Co.'s Siefkes 2, NE SE NE 3-22-12w	Arbuckle	3601	370	41.7	Field
Smoky Hill	Russell	Coralena Oil Co.'s Michel 1, NW NE NW 2-15-14w	Lansing	3064	1367	36.7	Field
Snider South	Stafford	Cities Service Oil Co.'s Smith B-1, C W½ W½ SW 16-21-11w	Arbuckle	3409	412	40.2	Field
Sterling	Rice	Murphy & Witt's Fair 1, NW SE SE 4-22-8w	Chat	3395	326	36.6	Field
Stumps North	Ellsworth	Wixon's Peterman 1, SWC 28-17-10w	Arbuckle	3306	785	42.7	Field
Wenke West	Rice	Tatlock's Burchart 1, SWC NW 18-20-10w	Arbuckle	3295	310	40.8	Field
Wilson	Cowley	Smith-Pryor & Lockhart's Wilson 2, NE NW NW 9-33-6e	Arbuckle	3523	443	43.1	Field
Wolf	Barton	Ash's Wolf Estate 1, SE SW SE 36-19-12w	Arbuckle	3374	502	41.6	Field
Burrton	Reno	Olson Oil Co.'s Downie 1, SE SW NE 14-23-4w	Wilcox	3727	35	39.6	Sand
Hittle	Cowley	McKnab & Blair's Hittle 1, SW SW SE NE 21-31-4e	Arbuckle	3288	1643	41.9	New Zone
Hoisington	Barton	Thayer Drilling Co.'s Soderstrom B-1, SWC NE 21-17-13w	Arbuckle	3462	458	42.2	New Zone
Lerado	Reno	Jones' Shepherd 1, NWC 22-26-9w	Viola	3587	173	36.7	New Zone
Trapp South	Barton	Shell Petroleum Corp.'s Schneider A-2, SEC 12-16-14w	Arbuckle	3093	630	40	New Zone
Vaughn	Russell	National Ref. Co.'s Reinhardt D-5, SEC NE 19-14-14w	Gorham	3289	725	34	New Zone
Weathered	Cowley	Wakefield's Wilson 3, SE NE NW 4-32-3e	Mississippi	3080	3124	32	New Zone

West Central Texas Had 17 New Fields During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
.....	Brown	J. O. Hart & Son's W. J. Richmond 1, 3050 ft. from N and 2850 ft. from E lines, M. Little Sur. No. 40	Pennsylvanian	1301	5	37	Pool
.....	Callahan	Woodley Pet. Co.'s Flores 1, C SE NW Sec. 149, B.B.B. & C. Sur.	Ellenberger	4333	15	40	Sand
Echo	Coleman	Brannon & Murray et al's J. C. Dibrell 1-C, 4573 ft. S and 1725 ft. W of NEc J. W. Hicks Sur. No. 265	Ranger Lime	3200	51	44	Sand
.....	Coleman	Simpson & White's C. Reeves 1, 800 ft. from S and 1980 ft. from E lines H. Rhodes Sur. A-631	Ranger Lime	2314	2.3 M. ft.	Gas	Sand
Duster	Comanche	W. J. Dobbs et al's V. B. Hodges 1, NEc H. & T. C. Sec. 11, Blk. 2	Marble Falls	2708	20	42	Pool
.....	McCulloch	J. W. Westbrook et al's S. Johnson 1, near SWc Sec. 1356, A. Neuendorf Sur. A-1069	Pennsylvanian	1836	25	34.2	Pool
.....	McCulloch	Noble Johnson et al's L. A. Patton 1, near C NE¼ Sec. 15, Indianola Ry. Sur.	Pennsylvania	1566	3½ M. ft.	Gas	Pool
.....	Stephens	A. A. Horwitz-W. P. Oldom & Perkins' B. S. Dance 1, 1431 ft. from S and 330 ft. from E lines SW¼ J. Koehler Sur. A-96	Caddo	3592	253	42	Pool
.....	Stephens	W. G. Rich, D. I. McNabb et al's J. L. Andrews 1, near SWc N½ T. & P. Sec. 39, Blk. 7	Lake Eastland Sand	3668	51	42	Pool
Avoca	Jones	Danciger Oil & Refineries, Inc.'s C. J. Peterson 1, NE SE SE Sec. 195, B. B. B. & C. Sur.	Gunsite	2016	145	38	Sand
Chittenden	Jones	Mack Hayes-Montour Prod. Co.'s W. L. Chittenden 1, SWc sub-div. 18. L. Kratz Sur. No. 335	.....	3024	190	37	Pool
.....	Jones	L. A. Hedrick et al's D. Akard 1, SWc 160-acre lease, G. Martinez Sur. No. 137	Flippen	2154	134	36	Pool
Noodle	Jones	Humble Oil & Refining Co.'s I. N. Irwin 1, SWc T. & P. Sec. 48, Blk. 18	Camp Colorado	2567	92	35	Pool
Noodle	Jones	Humble Oil & Refining Co.'s R. Horton 1, NEc T. & P. Sec. 40, Blk. 18	Swastika	2932	367	37	Sand
J-J-J	Jones	W. K. Jones et al's Ora Neas 1, SE part 75-acre tr. D. Bustillos Sur. No. 189	Hope	1978	483	37	Pool
.....	Jones	S. B. Roberts Co.'s R. E. Pritchard 1, SEc 142-acre tr. sub-div. 2, G. Martinez Sur. No. 195	Tannehill	2083	81	36	Pool
Steffens	Jones	W. L. Snoddy-C. C. Dodson's C. L. Steffens 1, SW SW NE T. & P. Sec. 32, Blk. 15	Bluff Creek	1910	288	38	Pool
Hamby	Jones	L. R. Terry-Dr. C. O. Terrell's J. O. Bartlett 1, SEc T. & P. Sec. 59, Blk. 14	Tannehill	1593	80	36	Pool
Avoca Twp	Jones	Ungren-Frazier et al's J. M. Griffin 1, near NWc N½SW¼ Sec. 199, B. B. B. & C. Sur.	Palo Pinto	3253	930	41.6	Pool
.....	Fisher	Daube Bros. Forest Dev. Corp.'s A. C. Bennett 1, C NE NE H. & T. C. Sec. 51, Blk. 2	Camp Colorado	3699	493	41.6	Pool
Beddo	Runnels	H. Price-Art Tucker & John Castor's J. C. Beddo 1, sub-div. 51, Thompson & Casey Sur.	Palo Pinto	3525	15	37	Pool
Carlisle	Stonewall	W. I. Southern, Inc. (was Stonewall Oil Co.'s) H. T. Carlisle 1, SW SE SW H. & T. C. Sec. 293, Blk. D	Palo Pinto	5177	371	41.8	Pool

lime zones with 3 each, the Chat, Mississippi and Gorham formations with 2 each, and the Burgess and Dodge strata with 1 each.

The cluster of fields in Barton, Ellis, Rice, Russell and Stafford counties accounted for 30 of the discoveries, Russell County was the leading contributor with 9 new fields and 1 new producing zone. These counties will account for the bulk of drilling in 1939.

Since market conditions will control field development this year in Kansas, and there is no indication of improvement, drilling is expected to decline further. However, no consideration of Western Kansas is completed without looking at its ultimate drilling program. Of the 44 new fields discovered in 1938, 28 had but one producing well at the end of the year. There are other one-well pools hanging over from previous years.

Oklahoma Finds 18 Fields

Oklahoma's 18 new fields in 1938 represented the same number that were found in 1937, but the average depths of the strikes increased to 4720 feet from 4177 feet. The state's most prolific horizon, the Wilcox sand, again accounted for most of the new fields, having 10 of the 18. The remainder of the discoveries were divided among a number of formations.

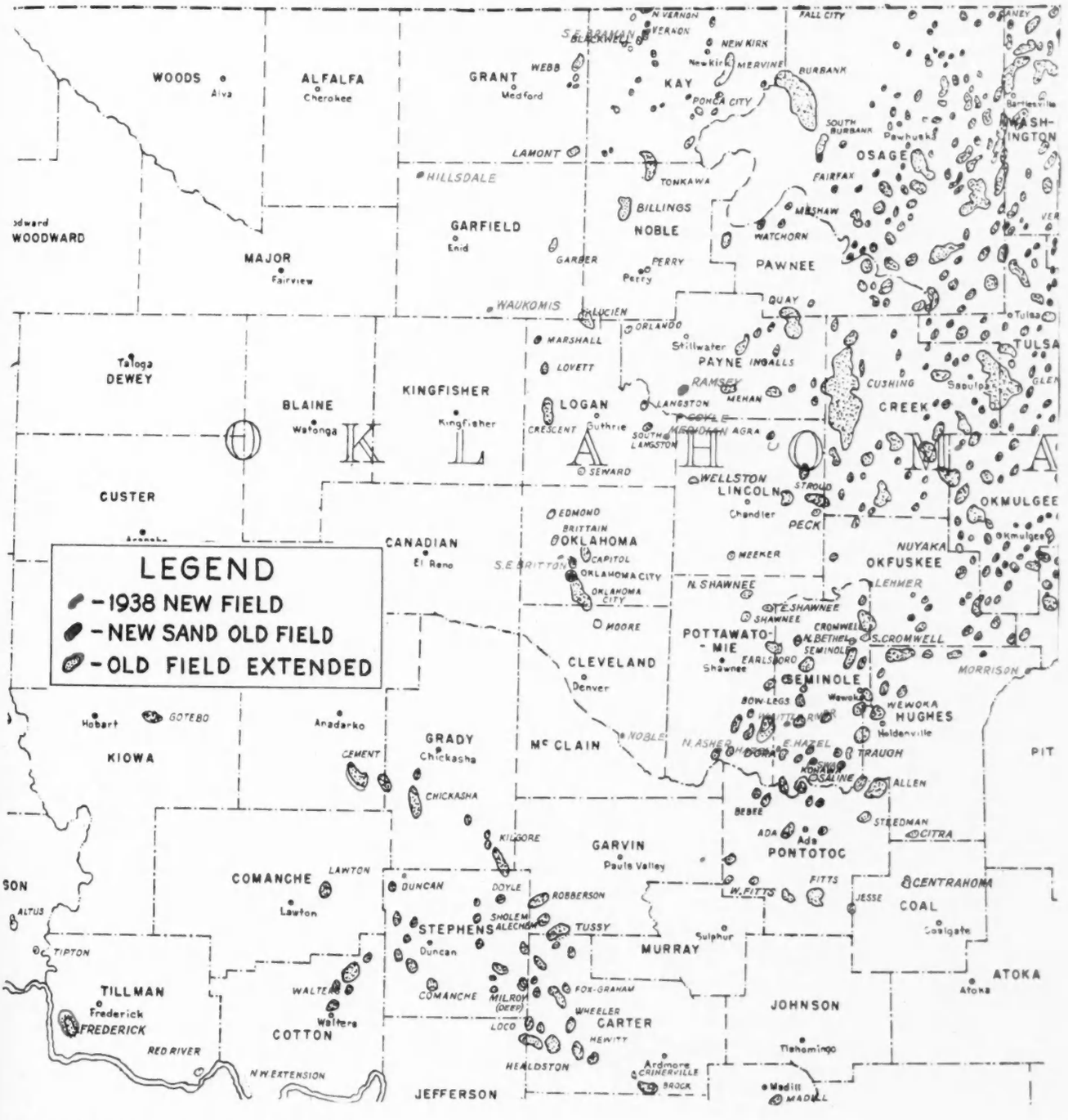
The volume of discoveries, for the second straight year were not sufficient to maintain the state's position in the oil industry, which indicates it will continue to slip backward unless something is found to change the picture.

Western Kansas Continues to Yield Many New Fields

Oklahoma Discovers 17 New Fields During 1938

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Output	Gravity	Type of Discovery
Centrahoma	Coal	Carter Oil Co.'s Claytor 1, C W½ NE SW 27-2n-9e	Viola Lime	6215	165	37.8	Field
Coyle	Payne	The Texas Co 's Longan 1, C Wp NW NW 12-17n-2e	Wilcox Sand	4956	525	41.2	Field
East Hazel	Seminole	Smith-Greer et al's Coker 1, NW NE NE 25-7n-5e	Not identified	3012	25	34	Field
Hazel	Seminole	Villines' Swan 1, NW NE NW 26-7n-5e	Thurman	2999	70	32.8	Field
Hillsdale	Garfield	Champlin Refining Co.'s Boehm 1, SW SW NE 4-24n-8w	Second Wilcox	6702	600	42.5	Field
Lehmer	Okfuskee	C. W. Titus' Lehmer 1, C NE NE 23-11n-8e	Cromwell	3482	130	31	Field
Morrison	Hughes	Phillane Oil Co.'s Morrison 1, SE SE SW 12-9n-11e	Second Wilcox	4030	70	41	Field
Meridian	Logan	Sinclair Prairie Oil Co.'s Crews 1, SW SW NE 27-16n-1e	First Wilcox	5234	1080	40.2	Field
Noble	Cleveland	W. A. Delaney's Burgher 1, SE SW 12-7n-2w	Second Wilcox	7682	770	41	Field
North Asher	Pottawatomie	Atlantic Refining Co 's McCurry 1, NE NW SW 6-6n-4e	Viola Lime	4209	610	3.9	Field
Ramsey	Payne	Mid-Continent Petroleum Corp.'s Ramsey 1, SWc NW 18-18n-2e	Second Wilcox	4768	935	42	Field
South Braman	Kay	Ohio Oil Co. and Helmerich & Payne, Inc.'s school land 1, SW SE SW 16-28n-1w	Second Wilcox	3645	640	41.8	Field
Southeast Britton	Oklahoma	Olson Oil Co 's Vaneck 1, SE SW NE 4-12n-3w	Second Wilcox	6768	250	42.03	Field
Swan	Seminole	W. A. Delaney's Swan 1, SE SE SW SW 16-6n-6e	Earlsboro	2691	75	37	Field
Traugh	Seminole	W. B. Pine's Williams 1, NW NW NE 22-6n-6e	Viola Lime	3633	600	35.1	New Sand
West Konawa	Seminole	Grisso Royalty Co.'s Johnson 1, NE SW SW 27-6n-5e	Not identified	3715	300	36	Field
West Little River	Seminole	Young & Newsom's Edgeman 1, SEc 17-7n-6e	Wilcox	4380	680	42	Field
Waukomis	Garfield	Hollenbach et al's Clark 1, NWc 34-21n-6w	Second Wilcox	7336	200	41	Field



More Pipe Line Construction May Occur in 1939

United States Pipe Line Systems Extended in 1938

(* Gasoline lines; † Natural gas lines)

COMPANY	ORIGIN	TERMINUS	Length, Miles	Diameter, Inches	Capacity, Barrels	Status
Arkansas						
Standish Pipe Line	Schuler	Cornie	14	6	.....	Building
Standard Pipe Line	Columbia Co.	Haynesville, La.	20	8	.....	Completed
†Arkansas-Louisiana Gas Co.	Schuler	El Dorado	18	6	.....	Completed
California						
*General Petroleum Corp. of Calif.	Wilmington Absorption Plant	Wilmington Tank Farm	5.4	3	12,000	Operating
Illinois						
Magnolia Petroleum Co.	Salem	Sandoval	8	6	15,000	Completed
Manly Oil Corp.	Salem	Centralia	5	4	8,000	Completed
Central States Pipe Line	Boyleston	Clay City	15	6	.....	Completed
Central States Pipe Line	Centralia	Lawrenceville	71	8–10	.....	Completed
Oklahoma Pipe Line	Louden	Brownsville	10	6	.....	Completed
Texas Pipe Line Co.	Salem	Sandoval	9	4	.....	Completed
Owensboro Corp.	Centralia	Sandoval	6	.....	.....	Completed
Kansas						
†Kansas Pipe Line and Gas Co.	Hugoton	Minnesota	1,040 1,306	Trunk Laterals	Gas	Contemplated
			2,346			
Derby Oil Co.	Robbins	Wellington	20	4	.....	Completed
Louisiana						
Atlas Pipe Line Corp.	Cotton Valley	Minden	12	6	.....	Completed
Standard Pipe Line	Cotton Valley	Weller	12	4	.....	Completed
Michigan						
Naph-Sol Refining Co.	Overisel	Vriesland	26	4	.....	Operating
Naph-Sol Refining Co.	Van Buren	Bloomingdale	3	3	.....	Operating
Commonwealth	Salem	Vriesland	24	4	.....	Operating
Tri-Lakes	Salem-Bloom	Hilliards	14	4	.....	Operating
Michigan-Toledo Pipe Line Co.	Freeman	Mt. Pleasant	31	8	.....	Operating
Michigan-Toledo Pipe Line Co.	Edenville	Town-line	6	6	.....	Operating
Michigan-Toledo Pipe Line Co.	Mt. Pleasant	Crystal	28	8	.....	Operating
Pure Oil Co.	Freeman	Temple	4	4	.....	Operating
Bay Pipe Line Co.	Buckeye	Bay City	34	6	.....	Operating
†American-Michigan	Grant	Clare	4	4	.....	Operating
†Clareco	Wise	Clare	3	3	.....	Operating
†McBride Coop	Home-Day	McBride	4	3	.....	Operating
†Consumers Power	Home	Edmore	3½	4	.....	Operating
†Northland	Sheridan	Evart	24	3	.....	Operating
†Taggarts	Morley	Winfield	8	4	.....	Operating
Titan	Bloomingdale	Grand Junction	7	4	.....	Building
†American-Michigan	Lincoln	Morley	30	6	.....	Surveyed
New Mexico						
Atlantic Pipe Line Co.	Eunice-Hobbs	Monument	8½	4-6	5,000	Operating
Texas-New Mexico Pipe Line Co.	Vacuum	Lynch	16	8	7,500	Operating
Ohio						
*Standard Oil (Ohio)	Lima	Fostoria	30	8	.....	Completed

PIPE LINE construction was fairly dormant during 1938, with the exception of the laying of gathering systems and necessary connections to trunk lines from newly discovered fields. However, these short carriers aggregated considerable mileage.

If several lengthy proposed systems materialize, 1939 has strong possibilities of seeing an expansion in the building of underground transportation facilities.

Long Lines Contemplated

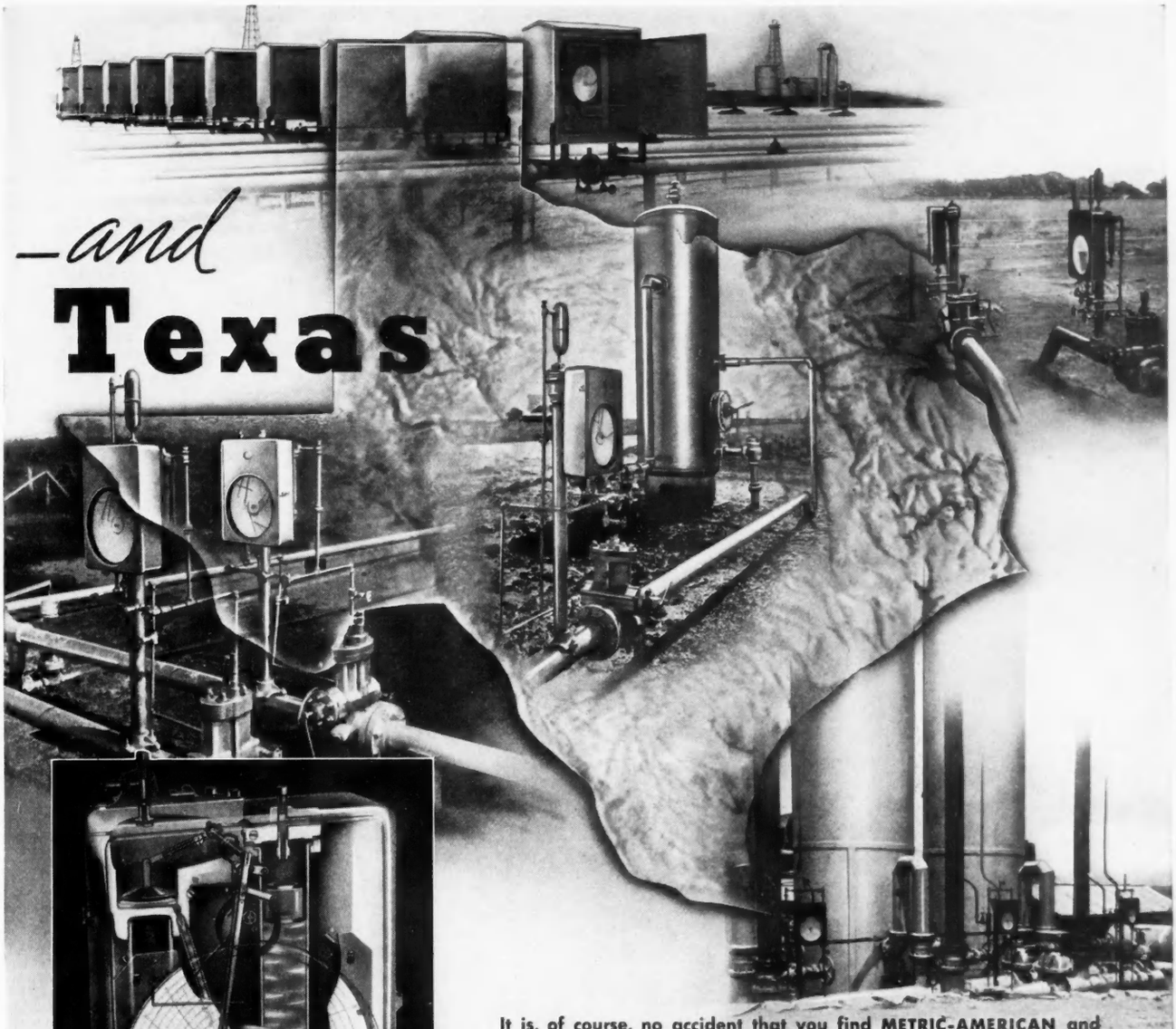
The clamor for an outlet for increasing production in the Turner Valley field of Canada may result in construction of a carrier from that point to either the Great Lakes or Vancouver, B. C. Either project would be sizeable, 750 to 1000 miles in length.

Several concerns are considering the construction of natural gas lines into Minnesota. One of these proposals would require 2346 miles of pipe. It would be 1030 miles of trunk line from the Hugoton, Kansas, field, and 1306 miles of laterals to serve towns lying adjacent to the route. Another of the contemplated projects into Minnesota would be from Wyoming. This would require something like 600 miles of trunk lines.

Still another sizeable possibility is the construction of a 380-mile 8-inch trunk line from the K-M-A oil field of North Texas to a tanker terminal below Houston. This has been under consideration since late last summer by Hope Engineering Company. This proposed carrier has adequate crude supplies pledged by options, and negotiations are pending with prospective foreign purchasers of oil.

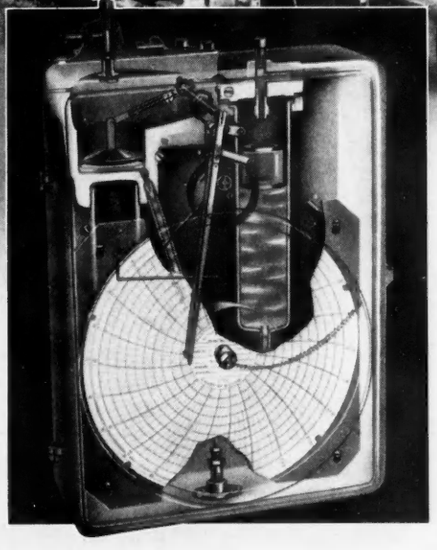
More extensive pipe line construction should occur in Illinois. However, these are not likely to be long systems because of the closeness of existing trunks and large consuming centers.

More extensive pipe line construction will occur in West Texas



—and

Texas



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1045

United States Pipe Line Systems Extended in 1938

(Continued from preceding page)

(* Gasoline lines; † Natural gas lines)

COMPANY	ORIGIN	TERMINUS	Length, Miles	Diameter, Inches	Capacity, Barrels	Status
Oklahoma						
Champlin Refining Co.	Hillsdale	Enid	12	.....	.....	Completed
*Great Lakes Pipe Line	Ponca City	Barnsdall	54	7	18,000	Completed
Cosden Pipe Line	Ramsey	Cushing	18	4	6,000	Completed
†Oklahoma Natural Gas	Cement	Chickasha	14	10–12	Gas	Completed
Pennsylvania						
†Carnegie Natural Gas Co	Chestnut Ridge	Waynesboro	27	8	Gas	Building
Rocky Mountain States						
†Uintah Pipe Line Co	Bigelow Hill, Wyo.	Coalville, Utah	53	18	.....	Completed
†Northern Utilities Co	35-Mile Gate	70-Mile Gate	15	10	.....	Operating
			20	14		
			35			
Rocky Mountain Pipe Line Co	Lance Creek Field, Wyo.	Cheyenne, Wyo.	136	8	44,472	Completed
Rocky Mountain Pipe Line Co	Cheyenne, Wyo.	Denver, Colo.	96	6	18,144	Completed
			232			
Rocky Mountain Pipe Line Co	Lance Creek Field, Wyo.	Glenrock, Wyo.	48	4	6,000	Completed
			15	6		
			63			
General Petroleum Corp	Cole Creek, Wyo.	Casper, Wyo	10	6	1,890	Contemplated
Home Oil & Refining Co	Cut Bank, Mont.	Great Falls, Mont.	100	6	18,900	Contemplated
†Public Service Gas Co	Wyoming	Minnesota	600	.....	.....	Proposed
East Texas						
Bell-General Transit Corp	Tyler	Bullard	20	8	12,000	Operating
†J. W. Lee, Tr., Hunt Oil Co	Chapel Hill	Joiner-Kilgore	16	6⅝–5½	35 M. ft.	Operating
†Lone Star Gas Co	Buffalo Field	Long Lake-Waco Unit	19	18	.....	Operating
Tyler Oil & Refining Co.	Arp	Tyler	28	4–8	6,000	Operating
Humble Pipe Line Co	Flag Lake	Mildred Station	18	4	2,000	Building
Texas Gulf Coast						
†Southwest General Pipe Line	Tomball	Prairie View	21	6	Gas	Completed
†United Gas Pipe Line	Katy	Clinton	48	10–12–16	Gas	Completed
North Texas						
*Bell Oil & Gas Co	Grandfield, Okla.	Burkburnett, Tex.	11	4	3,000	Operating
Sinclair Prairie Refining Co	Best	Gainesville	11	4	5,000	Operating
Hope Engineering Co	K-M-A	Gulf Coast	380	8	10,000	Contemplated
South Texas						
*Corpus Christi Corp	Stratton	Corpus Christi	30	5	2,000	Building
*Duval Gasoline Co	No. Sweden	Benavides	5	4	1,500	Operating
Faust Oil & Gas Co	Cordelle	Edna	7	4	2,000	Building
†Hiawatha Oil & Gas Co	Sweden	No. Sweden	5	4	.....	Operating
Humble Pipe Line Co	Fitzsimmons	Benavides	15	4	2,500	Operating
Humble Pipe Line Co	Sun-Kelsey	Benavides	100	8	1,500	Planned
Magnolia Pipe Line Co	Rancho Solo	Main Line	2	4	2,500	Operating
Magnolia Pipe Line Co	Western Duval	Main Line	15	4	2,500	Operating
Republic Pipe Line Co	East White Point	Main Line	2	4	4,000	Operating
Southern Pipe Line Co	Alice	Gathering System	....	4	8,000	Operating
†Southern Pipe Line Co	Saxet	Viola	3	20	.....	Operating
*Southern Pipe Line Co	Saxet	Gasoline Plant	8	4	2,000	Operating
Southern Pipe Line Co	La Rosa	Gathering System	....	4	.....	Operating
Southern-Phillips Pipe Line Co	Turkey Creek	Saxet	4	4	4,000	Operating
†United Gas System	Live Oak	McMullen	1¾	12	.....	Operating
West Texas						
Aloco Oil Co	Wasson	Hobbs, N. M.	27	6	12,000	Contemplated
Comanche Pipe Line Corp	Pecos Valley	Grand Falls	18	4	5,000	Operating
Comanche Pipe Line Corp	Masterson	Pecos Valley	13	2	1,000	Operating
Fisher County Pipe Line Co	Rotan	Royston	9	2	1,000	Completed
Humble Pipe Line Co	Bennett-Wasson	Hobbs, N. M.	38	6	12,000	Operating
Humble Pipe Line Co	Penwell-Judkins	Odessa	11	6	10,000	Operating
Phillips Petroleum Co	Harper Field	Penwell-Judkins	6½	4	5,000	Operating
Tidal Pipe Line Co	Howard Pool	Royston Sta	7½	4	5,000	Operating

when major purchasers develop increased markets for the mounting supply of available production. However, this probably will not happen during 1939. The majority of the carriers are operating near capacity. The north portion of the Permian Basin in West Texas is in line for several nominal trunk line extensions, as this rapidly expanding producing area has only one outlet, which is taxed.

Pipe line development in South Texas should complete a system to serve all producing sectors. Humble Oil & Refining Company is said to be contemplating construction of approximately 100 miles of 8-inch pipe line into the Kelsey-Sun district early in the year. This general portion of South Texas has been without transportation facilities. It is possible that the present Jackson County play will bring about extension of facilities from the upper Gulf Coast from the lower Gulf Coast to handle the newly developed crude. Continuously mounting reserves through Jackson, Victoria, Refugio, Nueces and San Patricio counties may lead to the ultimate construction of another big line to serve the entire sector.

Barco Getting Outlet

The longest oil line now under construction is in Colombia, South America, where South American Gulf Oil Company is building a 290-mile 12-inch carrier from its Barco concession to tidewater. This system will be completed during 1939.

The next largest line under way at this time is also outside of the United States, being a 280-mile gasoline line from the Atlantic Coast of France into the interior.

A third sizeable line now in the process of construction in an area outside the United States is Mene Grande Oil Company's 100-mile 16-inch system from the Officina field in Venezuela to tidewater.

Rocky Mountain Long Line

The longest line completed during 1938 was Rocky Mountain Pipe Line Company's 232-mile carrier from the Lance Creek field of Wyoming to Denver, Colorado. It is estimated the laying of this system in 69 days working time required $3,000,000. The line has a maximum throughput of 10,000 barrels daily. It consists of 136 miles of 8-inch pipe from Lance Creek to Cheyenne, and 96 miles of 6-inch pipe from this point to Denver.

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Composite Manifold

A CHRISTMAS TREE *and* FLOW LINE MANIFOLD

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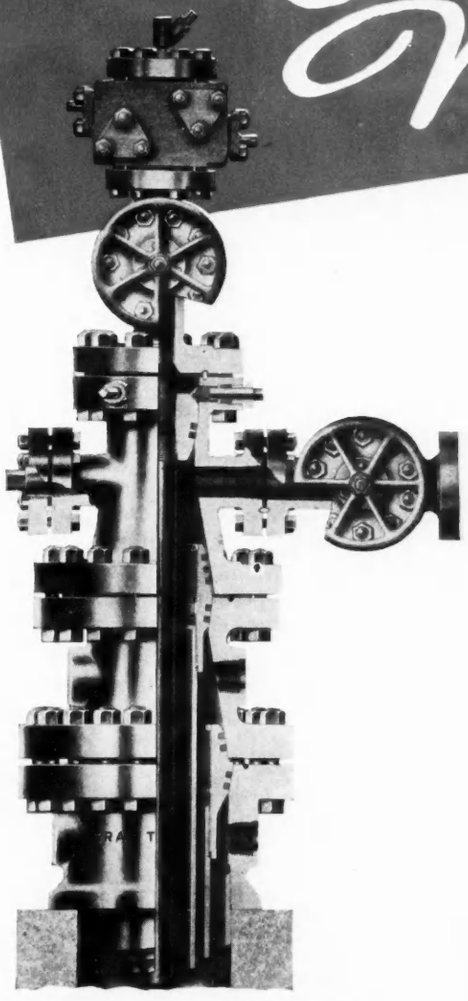
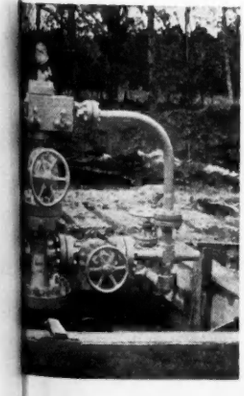
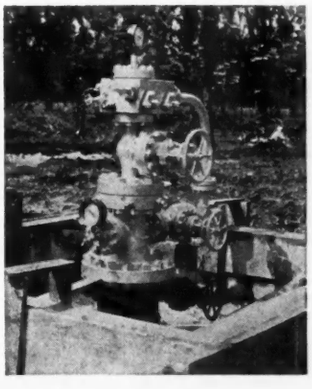


3-String Gray Well Head
with Composite Manifold





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Trends in Refining Affecting Crude Oil Use Analyzed

By GEORGE REID

TRENDS in the refining branch of the petroleum industry that will influence the utilization of crude oil may be briefly summarized as a general strengthening of position on the part of the larger, integrated type of oil companies; a changing picture in concentration of crude oil charging capacity; and a definite shift toward the use of various catalytic processes which all tend toward increased recovery of gasoline from crude oil. These trends, now well established, mean that refiners in improving their processing facilities, in the re-allocation of refinery capacity, and in utilization of such processes as catalytic cracking, polymerization, hydrogenation and their corollary processes, together with the necessity for constant renewal of corroded and worn out equipment, are forcing the refining branch of the industry to spend around $200,000,000 annually for new facilities and repairs. The refiner must constantly improve quality of products through the use of more efficient processes, and at the same time reduce operating costs by virtue of the operations of modern processes, and with little hope for any marked improvement in the selling price of the industry's primary products.

Thus the refining industry is prodded on the one hand toward constant expenditures to improve operating facilities, and is constantly prodded on the other hand to keep on reducing costs through more economies in operation. All of this means that it is continually necessary to secure higher yields of better quality motor fuels and lubricants from the barrel of crude.

Accompanying the rapid growth of petroleum refining in this country and its tendency toward the use of the newer catalytic processes, there has been marked extension of the use of cracking units, combination operations and reforming. In practically every instance the development of any of the dozen or more new and important processes in refining has been for the purpose of increasing yield.

The number of petroleum refineries in the United States reached an all time high in 1935 when 638 plants were reported. Since that time the number

Air view of the Port Arthur refineries of The Texas Company and Gulf Refining Company.

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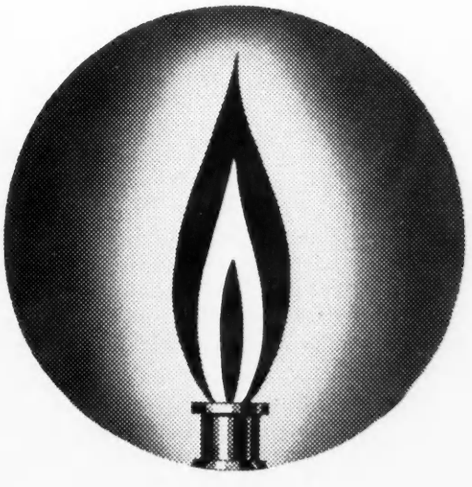


● This service didn't just happen. It takes these years of experience, these many men and materials, to make Natural Gas Service dependable and inexpensive.

● These men and women of the United Gas Pipe Line Company are your neighbors and friends —Home Folks. Without them this organization could not efficiently, adequately and economically provide for your Natural Gas needs. When you think of *Your Dependable Natural Gas Service*—think of the untiring work of the men and women who devote their lives to bring you comfort and happiness.

Dependable Natural Gas Service Doesn't Just Happen

UNITED GAS
PIPE LINE COMPANY

has been decreasing until current reports indicate 561 plants, of which 431 are in operation. During this period, as in previous years, total refining capacity has continued to increase, and in 1938 reached 4,373,701 barrels, of which 4,151,276 barrels was operating. This seemingly establishes a trend which indicates that in the future there will be a decrease in total number of refineries and that there will be bigger plants. Paralleling the growth in refinery capacity has been the increase in cracking capacity in which department there has been a consistent and steady increase during the past 15 years, with present total cracking capacity estimated at 2,547,580 barrels a day. More than half of the gasoline produced today comes from cracking.

During the past 10 years the total daily capacity of the refining industry has increased by 1,000,000 barrels, and the actual operating capacity has increased during the decade from 3,325,890 barrels to 3,970,196, or a total of slightly over 825,396 barrels of operating capacity.

This over-all increase in capacity however, has not been of a general nature and in certain of the refining districts no increase has been shown, in others actual losses in capacity or economic importance of the industry has been experienced, while in two districts marked increased capacity and increases in actual plants has taken place. These changes in status or importance of the districts affected are attributed to a number of influencing factors, which affect the various districts to varying degrees. All refining districts except the East Coast are located in or adjacent to oil-producing territories to the end that most refining centers or areas are influenced to a large degree by the success or failure of crude oil exploration efforts. Oil for refining in the East Coast plants has always been imported into the area by pipe line and tanker with the refineries in that territory gauging their operations upon local demand in highly populated and concentrated areas, and upon export requirements.

The most important gains in importance, capacity, or number and size of plants during recent years have been experienced in Texas, with particular emphasis on the Texas Gulf Coast region, and the Illinois-Indiana-Kentucky-Michigan refining district.

Move to Seaboard

The larger refining organizations and a number of the smaller or independent concerns have been for several years establishing refineries at the seaboard ports, chiefly in the Texas Gulf Coast district, which includes the Beaumont-Port Arthur area, the Houston-Texas City section and the Corpus Christi area. This trend has brought refining interests into the Gulf Coast chiefly from Oklahoma, Kansas and the Eastern Seaboard. Refiners in the Mid-Continent district, especially in the territory designated as "group three" have been maintaining for some time that it is virtually impossible to operate profitably under present conditions of crude oil prices, freight rates, taxes, and prices on finished products. These have been important factors in bringing about the marked decrease in importance of Oklahoma as a refining area. Other factors, of course, include the appearance of competitive crude oil, such as production from Illinois, and the development of a Michigan refining district following development of that state as an important producing area.

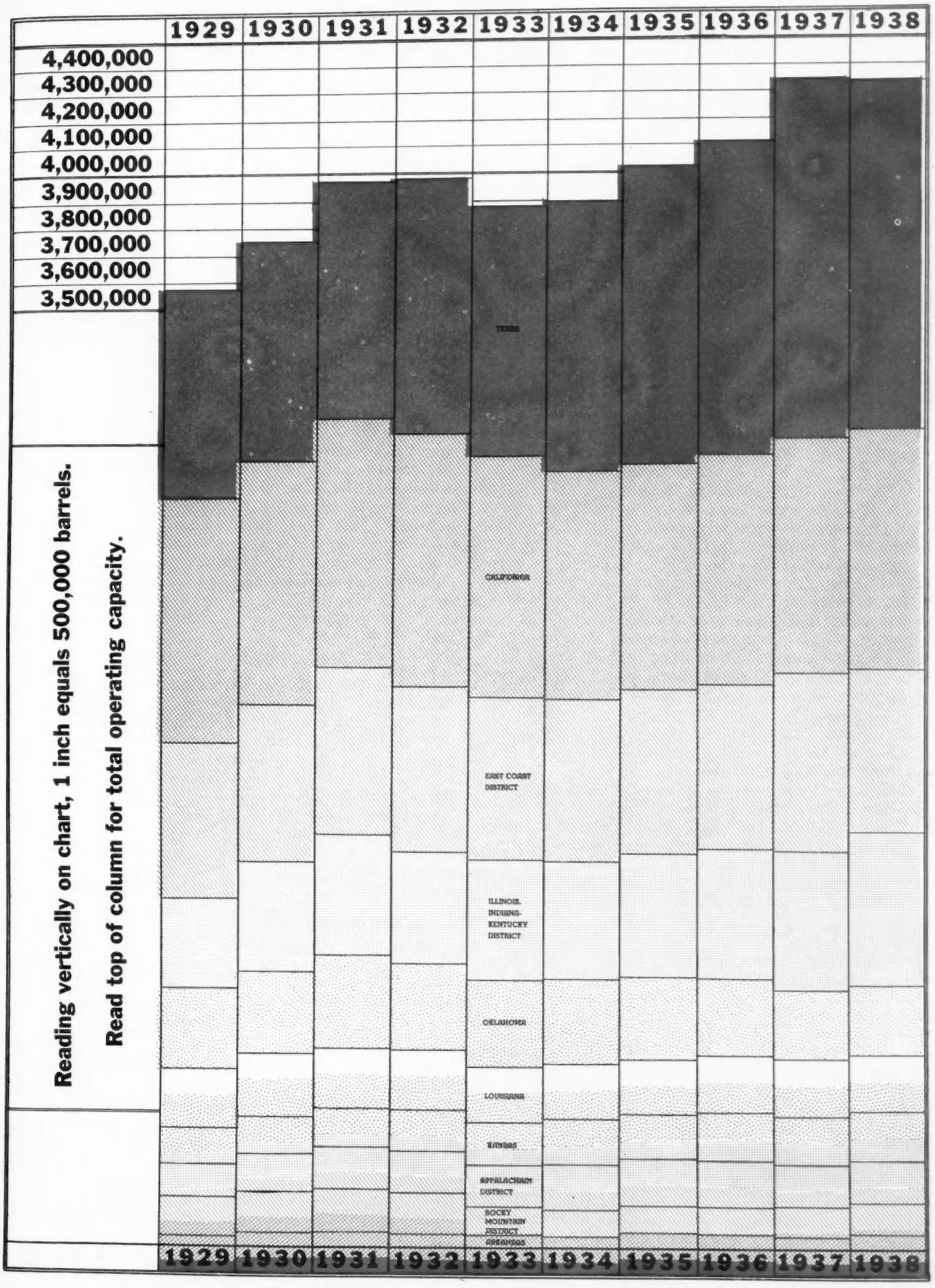
Oklahoma has seen a serious decline in refining importance during the past few years. Its best year was in 1931 when operating capacity totalled 316,900 barrels a day from 45 operating plants. Since that time there has been a steady decrease in both number of refineries and in capacity. The state has lost 18 refineries during recent years, now having but 29 operating plants, and its present operating capacity is but 213,950 barrels daily, which indicates a decrease in operating refining capacity of over 100,000 barrels a day. The state has sufficient crude oil production to support its refineries, although several of them originally erected to process certain types of crudes have been abandoned because of depletion of the producing field. Further, the development of the Oklahoma City field brought into being a number of small skimming plants in that region which had little economic reason for existance and of necessity have dropped out of the picture.

Big Increase in Texas

The most remarkable growth in importance both from the standpoint of refineries and operating and rated capacity has occurred in Texas. During the past 10 years refining capacity has been doubled with the same situation existing with regard to number of plants in operation. At present the state has 112 plants operating out of a total of 153 plants reported, and the operating capacity is 1,171,180 barrels daily, with total capacity reported at 1,283,735 barrels. With regard to the relative importance as compared to other refining districts, Texas has 29.49 percent of the operating capacity of the United States, and 29.35 percent of the country's total rated capacity. This growth in capacity and in number of operating plants of importance has been a steady increase since the time of 1933 and 1934 when the legion of tea-pot and junk pile operators were forced out of East Texas. At present the state has 31 refineries in the Gulf Coast district and 122 plants in Inland Texas, and the operating capacity of the inland plants is reported at 264,680 barrels a day with total capacity given as 367,735 barrels. There has not been the marked development in Inland Texas refineries that has occurred in the Gulf Coast area. and junk pile operaters were forced out of East Texas. At present the state has 31 refineries in the Gulf Coast district and 122 plants in Inland Texas, and the operating capacity of the inland plants is reported at 264,680 barrels a day with total capacity given as 367,735 barrels.. There has not been the marked development in Inland Texas refineries that has occurred in the Gulf Coast area.

The Texas Gulf Coast refining district, has grown during the past 10 years from 17 plants to 31, and capacity has more than doubled, increasing from 449,000 barrels in 1929 to 906,500 barrels in 1938. During the same period total capacity has increased from 499,000 barrels to 916,000 barrels. Of the present total operating capacity, 859,000 barrels is located in the Houston-Beaumont-Port Arthur district and 57,000 barrels in the Corpus Christi area. Thus the Gulf Coast of Texas has a total of 77.39 percent of the operating total for the state and 71.36 percent of the total capacity.

In relation to the United States the Texas Gulf Coast refining district now represents 22.83 percent of the domestic operating capacity and 20.94 percent of the total rated capacity. The nearest approach to relative importance of this nature for any other


1929
1930
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4,400,000
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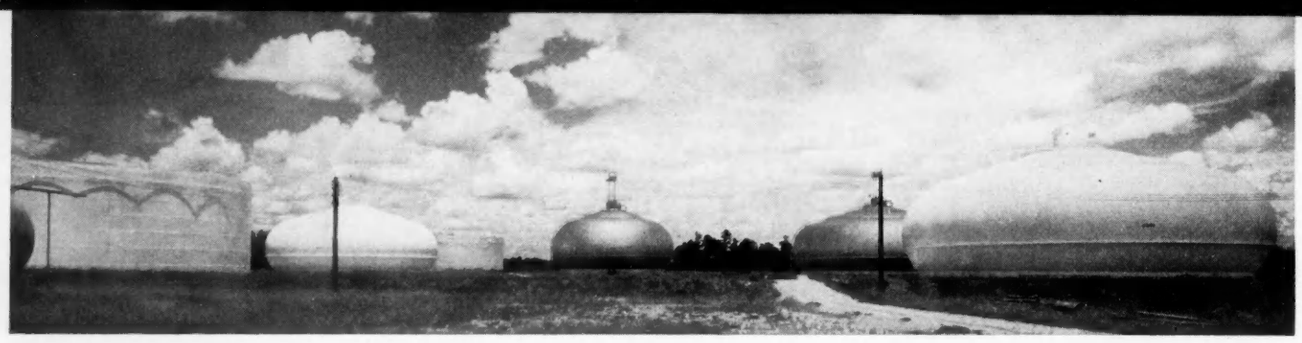
3,900,000
3,800,000
3,700,000
3,600,000
3,500,000
Reading vertically on chart, 1 inch equals 500,000 barrels.
Read top of column for total operating capacity.
TEXAS
CALIFORNIA
EAST COAST DISTRICT
ILLINOIS, INDIANA-KENTUCKY DISTRICT
OKLAHOMA
LOUISIANA
KANSAS
APPALACHIAN DISTRICT
ROCKY MOUNTAIN DISTRICT
ARKANSAS



Group of light gasoline storage tanks at Phillips Petroleum Company's plant at Houston.

single refining district is California where total operating capacity is 20.6 percent and reported capacity is 20.5 percent of the country's total.

Big Companies Expanding

The position and importance of the larger integrated type of companies operating petroleum refineries has been materially strengthened both through mergers and general expansion and additions to facilities during recent years. By comparison with their status 5 years ago, the improvement in position of the 23 leading integrated companies is indicated by the fact that these concerns with their subsidiaries, now totalling 41 companies because of various mergers, have 81.24 percent of the total refining capacity of the United States, and 85.16 percent of the country's total operating capacity. In the cracking field these important concerns have 87.51 percent of total reported cracking capacity and 94.85 percent of the total operated cracking capacity.

Although these 23 refining organizations have reduced the total number of owned refineries from 177 five years ago to 151 (a decrease of 26 refining plants) they have increased crude running capacity for the group from 3,248,650 barrels a day in 1933 to 3,554,600 barrels daily in 1938. Likewise they have increased their cracking capacity from 1,834,330 barrels daily five years ago to 2,229,530 barrels a day at the time this analysis was made, November 1, 1938. Present total cracking capacity for the industry is 2,547,580 barrels, with a total of 149,525 barrels of cracking capacity shut down.

This analysis indicates that these 23 concerns with 151 plants have 26.97 percent of the total operating refineries (441 plants) and 32.24 percent of the total of 561 refineries reported in the most recent survey. There are 120 refineries reported shut down and total shut-down capacity is reported at 199,875 barrels. Thus with a decrease in the number of refineries operated by this group of 23 concerns and their subsidiaries, they have at the same time shown important increases in both crude oil charging capacity and cracking facilities.

The last five-year period has witnessed the rapid and extensive application of solvent extraction and solvent dewaxing processes in the manufacture of lubricants, and out of the total of 60 such units reported in this country, the group of 23 companies under discussion has installed 50 of them, or 83.3 percent of the total number of such installations at present.

During the same period the thermal and the catalytic polymerization processes have been increasing in importance and in the scope of their application to the problem of producing the anti-knock gasoline of higher-octane ratings from refinery and natural gases. This group of integrated companies has been the pioneers in the adaption and development of commercial polymerization, successfully using both the thermal and catalytic types to the end that they now have 25 polymerization installations out of a total of 36 units in this country, which is 69.4 percent of the units listed at present. In addition to polymerization two companies in the group of 23 are interested in catalytic cracking and are installing 8 large units now to cost around $34,000,000. Several additional refining companies have announced that they will go into construction of catalytic-cracking units in 1939. Several installations are operating for production of iso-octane and in the hydrogenation field, 17 of the 23 companies comprising the group being discussed are interested in Hydro Patents Company and there are now four installations of the hydrogenation process operating under the Hydro license. Thus in the field of synthesis, these companies, employing various catalytic polymerization, catalytic cracking and hydrogenation processes, totalling 29 installations, are leading the industry along those lines which technologists have so long prophesied and speeding the day when petroleum refining will become more of a chemical industry, producing perhaps scores of products along the synthetic or catalytic route—in addition to larger per-barrel yields of higher quality motor fuel.

Many Small Units Remain

Despite the fact that 23 companies and their subsidiaries control such a large percentage of the industry's capacity, there remains the interesting fact that the remainder of 328 refineries in this country are operated by 296 companies. This gives a total of 406 companies operating plants in the United States. The capacity of the 328 plants mentioned is 922,423 barrels a day, and 103 of these refineries are equipped with cracking facilities, leaving a total of 225 refineries in the group of smaller companies which have no cracking plants. Likewise, it is interesting to note that a total of 30 refineries operated by the 23 companies previously under discussion, do not have cracking facilities, giving a total of 255 plants operating in this country (well over half of the operating plants) which have not yet been provided with cracking units.

Natural Gasoline

An interesting facet to this many-sided story of gasoline manufacture is that of the natural gasoline branch of the industry. According to latest available reports only 42 of the companies engaged in petroleum refining, out of a total of 406 companies engaged therein, are interested in natural gasoline production. On the other hand, there are 176 concerns which are purely or strictly manufacturers of natural gasoline and are not at all interested in petrooleum refining. Thus, it is found that the manufacturing division of the petroleum industry consists of 624 units or companies engaged in the two divisions of manufacture. In natural gasoline manufacture there are about 750 plants in operation.

Outlook for Natural Gas Industry Is Promising

Improving business probably will cause increase of sales during 1939.

* * * *

Domestic and commercial demand steady in 1938 but industrial use down.

By L. J. LOGAN, Associate Editor

THE outlook for the natural gas industry in 1939 is definitely promising, as the indicated improvement of general business conditions probably will result in increases of customers, sales, production, revenue, and profits.

Upward trends are normal in the industry, which is steadily growing and expanding, in keeping abreast of increasing consumption. And inasmuch as 1939 promises to be a comparatively good business year, the increasing trends may be accentuated.

Industrial Sales Off

To some extent the industry was retarded in 1938 by the business recession, particularly in so far as gas sales to industrial consumers were concerned. Those sales were 14.7 percent smaller than in 1937. However, sales for generating electric power were up 1.1 percent, and combined sales in the industrial and electric power generation fields were off only 11.6 percent. Revenue from those combined sales was down 13 percent.

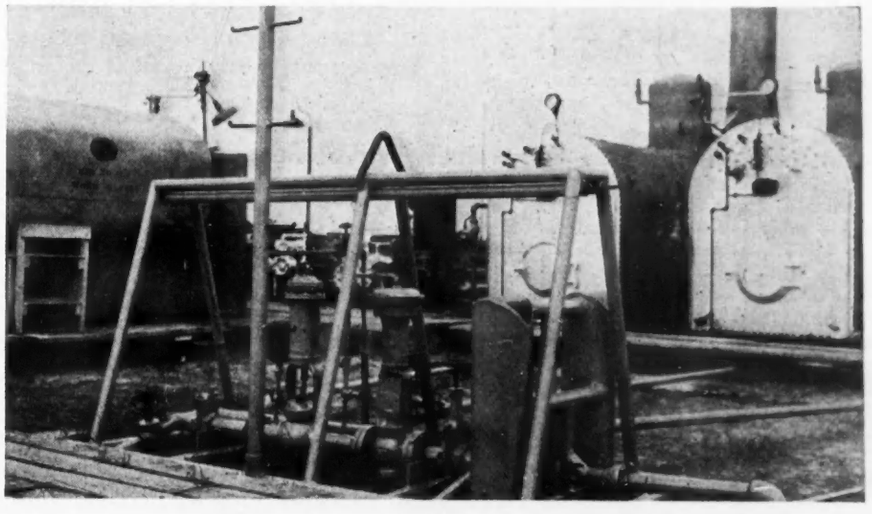
However, sales of gas to domestic and commercial customers were down only 2.5 percent and 3.1 percent, respectively, and the decreases were due primarily to milder weather. Revenue from the domestic and commercial customers showed declines of 1 and 1.6 percent, respectively.

The reduced sales to industrial customers, therefore, were primarily responsible for an over-all decline of 8.4 percent in natural gas sales for 1938 and a decrease of 5.1 percent in total revenue.

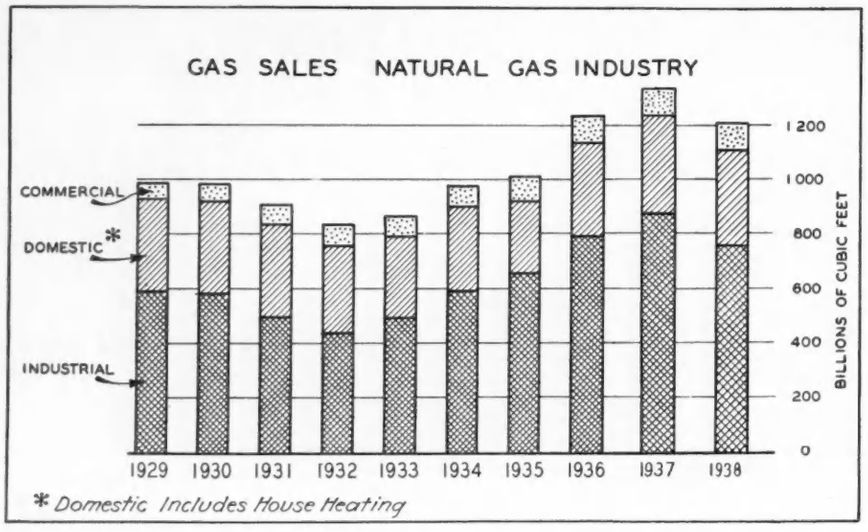
Customers Increase

Encouraging, meanwhile, was the continued upward trend in 1938 in the number of consumers of natural gas. Total customers increased 2 percent to a new peak of 7,147,000. Increases for the several classes of consumers conformed closely with that 2 percent general increase. The 7,147,000 cus-

Fourth of Natural Gas Consumption Goes Into Operations of Oil and Gas Industries



Natural gas is widely used for oil field development and plant operation. Automatic gas regulators for firing boilers at a drilling rig are shown here. A gas well may be more valuable than an oil well in a field under heavy development.



tomers of the industry at the end of 1938 included 6,596,000 domestic consumers, 510,000 commercial customers, and 41,000 industrial users.

Sales Outlook Promising

For 1939, further increases of customers are in prospect, and gains in sales to all classes of consumers probably will occur.

Increased sales of gas ranges are anticipated in 1939, although more than a million of these cooking appliances were sold in 1938. Sales of gas water heaters also are expected to increase further in 1939, after having totaled 680,000 in 1938. And gas refrigerator sales continue relatively large.

Over 2,225,000 homes in the United States are heated by gas, and the number probably will show a better than average annual increase in 1939, because of the anticipated large amount of home building.

Natural gas is used extensively for running gas engines, and that use is steadily increasing.

Natural Gas Production Up

Production of natural gas in the United States, including quantities used in the manufacture of carbon black and for field purposes, continued to increase in 1938 and reached a new all-time high of 2,524,700,000,000 cubic feet, according to preliminary estimates. That was 3.1 percent more production than in 1937.

The increase for 1938 was not as large, however, as the gains of 13 percent each in 1937 and 1936.

Texas produced 7 percent more gas in 1938 than in 1937 and retained its long lead over other states, having furnished over a third of the United States production.

California had a 9 percent increase in 1938 and replaced Okla-

Large Part of Carbon Black Goes Into Making of Automobile Tires

This table, showing use of carbon black, made from natural gas, is based on data for 1937 in "Minerals Yearbook, 1938."

INDUSTRY	Consumption (Thousands of Pounds)	Percentage of Total Consumption
Rubber Companies	269,807	55.2
Ink Companies	18,116	3.7
Paint Companies	6,159	1.2+
Miscellaneous users	11,503	2.3+
Total domestic	305,585	62.4
Exports	184,030	37.6
Total sold	489,615	100.0

Preliminary Estimates on the Natural Gas Industry for 1938

	1938	Percent Change from 1937
Customers:		
*Domestic	6,596,000	+ 2.0
Commercial	510,000	+ 1.8
Industrial	41,000	+ 2.5
Total	7,147,000	+ 2.0
Gas Sales (Mcf.):		
*Domestic	350,143,000	— 2.5
Commercial	99,459,000	— 3.1
Industrial	581,451,000	—14.7
Electric Generation	172,500,000	+ 1.1
Total Industrial and Electric Generation	753,951,000	—11.6
Total	1,203,553,000	— 8.4
Revenue (Dollars):		
*Domestic	244,063,000	— 1.0
Commercial	47,381,000	— 1.6
Industrial and Electric Generation	127,418,000	—13.0
Total	418,862,000	— 5.1

* Including house heating.

Natural Gasoline Production Increases with Processing of More Natural Gas

This table is based on U. S. Bureau of Mines figures.

YEAR	Number of Natural Gasoline Plants	Natural Gas Processed (Millions of Cubic Feet)	Natural Gasoline Production (Thousands of Gallons)	Average Yield of Gasoline per 1,000 Cubic Feet of Gas Processed (Gallons)
1911	176	2,476	7,426	3.000
1912	250	332	12,081	2.577
1913	341	9,889	24,061	2.433
1914	386	16,895	42,653	2.525
1915	414	24,064	65,365	2.716
1916	596	208,705	103,493	0.496
1917	886	429,288	217,884	0.508
1918	1,004	449,109	282,536	0.629
1919	1,191	480,404	351,535	0.732
1920	1,154	496,431	384,744	0.775
1921	1,056	479,618	449,934	0.938
1922	917	545,139	505,832	0.928
1923	1,067	875,711	816,226	0.932
1924	1,096	1,016,276	933,861	0.919
1925	1,080	1,040,369	1,127,437	1.084
1926	1,101	1,206,275	1,363,057	1.130
1927	1,118	1,341,233	1,641,125	1.224
1928	1,077	1,473,414	1,814,008	1.231
1929	1,086	1,959,267	2,233,653	1.140
1930	1,034	2,088,748	2,210,455	1.058
1931	936	1,790,094	1,831,886	1.023
1932	829	1,499,737	1,523,775	1.016
1933	778	1,551,444	1,419,975	0.915
1934	766	1,776,172	1,535,360	0.864
1935	715	1,822,000	1,651,986	0.910
1936	700	1,815,000	1,796,340	0.99
1937	*	2,040,000	2,039,100	1.0
1938	*	†2,100,000	†2,112,000	1.0

* Data not available.
† Figures estimated by THE OIL WEEKLY.

Natural Gas Is Used Extensively for Heating Homes and for Heat and Power Production in Factories

This table, showing United States consumption of natural gas, by types of use, in 1937 was compiled from the latest annual report on natural gas by the Bureau of Mines.

USE	Millions of Cubic Feet Consumed	Percent of Total
Domestic	371,844	15
Commercial	117,390	5
ndustrial:		
Field (drilling, pumping, operation of gasoline plants, etc.)	691,320	28
Manufacture of Carbon Black	341,085	14
Public Utility Electric Power Plants	170,567	7
Petroleum Refineries	113,005	5
Other Industrial Consumption	637,830	26
Total Industrial Consumption	1,953,807	80
Grand total, all uses	2,443,041	100

homa as the second largest producing state. Oklahoma showed a 2 percent decrease and dropped back to third place. Louisiana had a 3 percent decline, but remained fourth among the producing states, and was not far behind Oklahoma. These three states, of similar rank, together had about the same amount of gas production as Texas and accounted for another third of the United States output.

Production of Natural Gas in the United States Rises to New Peak in 1938 as Demand Continues to Increase

This table shows natural gas produced in the United States and delivered to consumers, by states, by years, since 1905. It is based on figures of the U. S. Geological Survey and the U. S. Bureau of Mines.

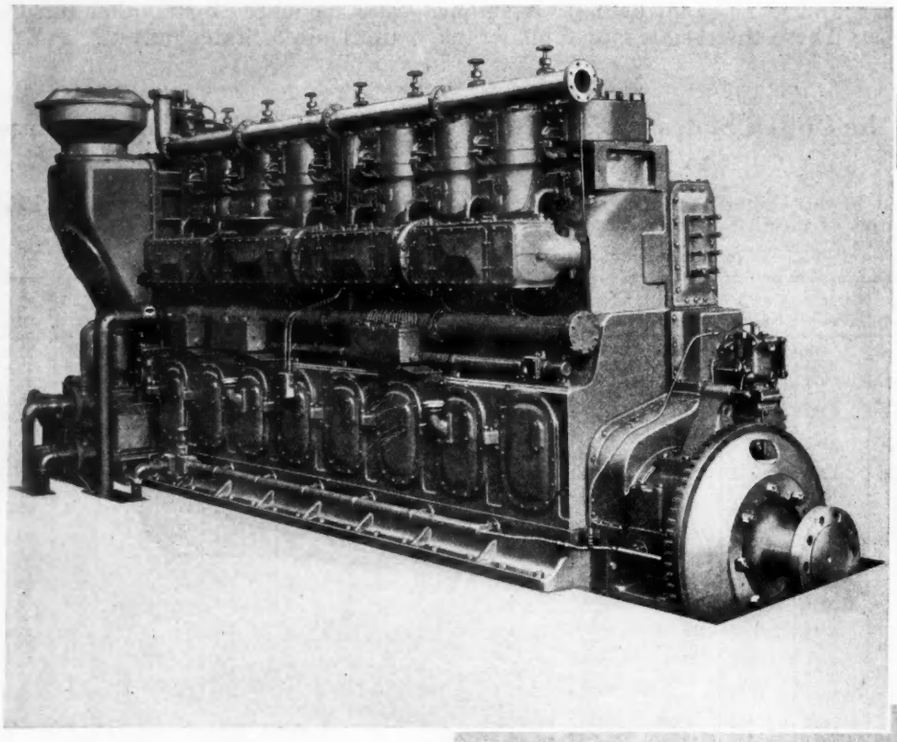
(Millions of Cubic Feet)

YEAR	Arkansas	California	Colorado	Illinois	Indiana	Kansas	Kentucky	Louisiana	Michigan	Mississippi	Missouri	Montana	New Mexico	New York	Ohio
1906	[A]	153	.....	410	7,861	69,323	789	[B] 1,039	.....	.....	.....	.....	.....	2,548	45,436
1907	[A]	230	.....	1,155	6,624	76,707	1,303	[B] 1,288	.....	.....	.....	.....	.....	3,288	52,041
1908	[A]	479	.....	4,979	5,256	80,740	1,430	[B] 1,752	.....	.....	.....	.....	.....	3,843	47,442
1909	[A]	2,324	.....	8,473	6,159	75,074	2,097	[B] 4,365	.....	.....	.....	.....	.....	4,696	53,223
1910	[A]	2,764	.....	6,723	5,760	59,380	1,357	[B] 8,110	.....	.....	.....	.....	.....	6,010	48,232
1911	[A]	6,390	.....	6,762	4,365	38,800	1,275	[C] 9,786	.....	.....	.....	.....	.....	5,240	49,450
1912	[A]	9,355	.....	5,603	3,618	28,068	1,951	[C]14,493	.....	.....	.....	.....	.....	8,626	56,210
1913	[A]	11,035	1,106	4,767	2,921	22,884	1,821	[C]26,653	2	.....	20	.....	.....	8,515	50,612
1914	[A]	17,829	[A]	3,548	2,580	22,628	1,422	[C]26,775	2	.....	18	.....	.....	8,935	68,270
1915	[D] 992	21,891	[A]	2,690	2,261	27,046	1,667	25,540	2	.....	27	6	.....	7,977	79,510
1916	2,388	31,643	575	3,534	1,715	31,710	2,107	32,081	1	.....	69	213	.....	8,036	69,888
1917	5,610	49,427	[A]	4,439	1,712	24,439	2,802	31,287	1	.....	31	334	.....	8,372	68,917
1918	5,295	39,719	.....	4,473	1,667	27,825	3,022	36,094	.....	.....	.....	177	.....	8,461	61,261
1919	5,587	55,607	10	3,825	1,407	16,150	2,057	47,062	1	.....	4	858	.....	8,124	63,153
1920	9,027	66,041	8	3,013	1,779	21,158	3,345	58,274	[A]	.....	4	818	.....	8,419	58,938
1921	4,260	75,942	4	2,646	1,066	15,717	4,820	58,004	[A]	.....	4	336	.....	6,583	47,412
1922	9,700	84,580	4	3,383	947	20,289	5,872	70,267	[A]	.....	2	486	.....	6,947	51,481
1923	24,215	131,434	.....	4,049	880	30,913	11,953	112,031	.....	.....	.....	1,470	.....	6,497	53,812
1924	36,616	189,692	48	4,072	998	25,580	12,875	160,945	[A]	.....	71	1,071	.....	6,196	47,396
1925	41,878	187,789	574	4,165	1,168	26,917	10,770	152,620	[A]	.....	34	1,496	.....	6,210	43,235
1926	43,566	204,915	553	3,808	901	38,095	10,410	157,423	[A]	.....	1	2,283	921	7,027	47,363
1927	30,450	212,364	1,725	3,741	1,124	42,646	10,206	186,961	[A]	.....	[A]	4,253	1,019	5,908	51,381
1928	20,235	246,215	2,931	3,051	1,290	45,644	15,383	227,821	469	.....	360	6,277	838	7,224	56,341
929	19,928	342,214	2,787	2,983	1,012	38,469	27,588	261,138	4,526	90	324	9,659	3,054	8,387	57,936
1930	18,585	334,789	3,312	2,890	1,217	37,630	28,023	278,341	2,075	179	1,064	10,060	9,497	9,624	63,394
1931	13,300	305,930	2,536	2,130	1,337	38,742	27,870	224,155	472	6,048	1,534	10,949	19,354	7,868	56,326
1932	10,235	263,484	2,547	1,769	1,349	40,690	29,005	201,561	968	8,648	932	13,295	17,604	8,813	51,466
1933	8,288	259,799	2,449	1,631	1,544	41,596	31,380	197,826	1,528	8,679	673	14,391	19,148	6,865	47,929
1934	7,024	268,122	2,633	1,868	1,802	46,909	33,124	225,713	2,789	8,245	549	14,971	24,075	6,278	50,330
1935	6,167	284,109	2,843	1,448	1,777	57,125	39,738	249,450	4,203	9,643	609	19,870	27,931	8,288	49,592
1936	8,500	320,406	3,687	865	2,241	69,178	43,903	290,151	7,167	11,821	399	23,003	33,928	12,431	46,994
1937	9,690	329,769	3,186	1,040	1,551	83,890	55,719	315,301	9,080	13,348	[A]	24,765	46,337	21,325	42,783
1938[E]	18,000	360,000	3,000	1,500	2,500	78,000	62,000	305,000	9,800	16,800	.....	26,300	48,800	20,000	39,000

YEAR	Oklahoma	Pennsylvania	South Dakota	Tennessee	Texas	Utah	Washington	West Virginia	Wyoming	Other States	Total	ESTIMATED VALUE AT THE WELLS: Total	ESTIMATED VALUE AT THE WELLS: Average per 1,000 Cu. Ft. (Cents)	VALUE AT POINTS OF CONSUMPTION: Total	VALUE AT POINTS OF CONSUMPTION: Average per 1,000 Cu. Ft. (Cents)
1906	3,520	138,161	.....	.....	[B]	.....	.....	119,400	[A]	203	388,843	.....	....	46,900,000	12.1
1907	4,867	135,516	.....	.....	[B]	.....	.....	122,687	[A]	916	406,622	.....	....	54,200,000	13.3
1908	11,925	130,476	.....	.....	[B]	.....	.....	112,181	[A]	1,638	402,141	.....	....	54,600,000	13.6
1909	28,037	127,697	.....	.....	[B]	.....	.....	166,435	[A]	2,126	480,706	.....	....	63,200,000	13.1
1910	50,430	126,867	.....	.....	[B]	.....	.....	190,706	[A]	2,816	509,155	.....	....	70,800,000	13.9
1911	67,276	108,869	.....	.....	5,503	.....	.....	206,891	[A]	2,386	512,993	.....	....	74,622,000	14.5
1912	73,799	112,150	.....	.....	7,470	.....	.....	239,007	[A]	1,853	562,203	.....	....	84,600,000	15.0
1913	75,018	118,860	66	2	12,160	.....	.....	245,454	[A]	2	581,898	.....	....	87,800,000	15.1
1914	78,167	110,745	60	1	13,434	.....	.....	236,489	[A]	964	591,867	.....	....	94,100,000	15.9
1915	87,517	113,692	[A]	1	13,324	.....	.....	244,004	[A]	432	628,579	.....	....	101,300,000	16.1
1916	123,517	130,484	[A]	2	15,810	.....	.....	299,319	[A]	78	753,170	.....	....	120,200,000	16.0
1917	137,384	133,397	[A]	11	17,047	.....	.....	308,617	[A]	1,283	795,110	.....	....	142,100,000	17.9
1918	124,317	123,813	.....	.....	13,440	.....	.....	265,161	4,339	1,937	721,001	.....	....	153,600,000	21.3
1919	163,649	113,489	32	77	24,710	.....	.....	234,095	6,014	5	745,916	.....	....	160,888,000	21.6
1920	154,467	125,787	20	15	37,063	.....	.....	239,719	10,312	3	798,210	.....	....	196,194,000	24.6
1921	124,058	86,144	9	11	44,504	.....	.....	174,921	15,608	3	662,052	[G]	[G]	174,617,000	26.4
1922	140,631	101,276	15	3	47,945	.....	.....	195,288	23,427	3	762,546	84,873,000	11.1	221,535,000	29.1
1923	203,082	112,562	.....	.....	74,535	.....	.....	203,867	35,523	153	1,006,976	.....	....	.....	....
1924	214,452	105,863	3	1	107,247	.....	.....	182,285	46,036	74	1,141,521	105,779,000	9.3	253,856,000	22.2
1925	249,285	101,632	4	8	134,872	.....	.....	180,345	45,539	30	1,188,571	112,047,000	9.4	265,271,000	22.3
1926	286,421	107,089	10	11	175,392	.....	.....	180,223	46,567	40	1,313,019	124,693,000	9.5	300,168,000	22.9
1927	326,864	105,709	92	9	254,063	.....	.....	162,375	43,582	956	1,445,428	127,468,000	8.8	317,930,000	22.0
1928	320,861	99,466	54	.....	301,990	1,105	.....	163,018	47,490	76	1,568,139	139,898,000	8.9	363,726,000	23.2
1929	357,893	101,951	99	25	464,928	693	.....	167,333	44,648	28	1,917,693	157,596,000	8.2	413,276,000	21.6
1930	348,116	88,706	98	24	517,880	393	.....	144,180	43,219	125	1,943,421	147,048,000	7.6	416,090,000	21.4
1931	263,685	74,797	12	25	464,580	219	.....	124,797	39,770	.....	1,686,436	117,505,000	7.0	392,816,000	23.3
1932	255,487	61,611	10	22	456,832	184	.....	100,540	28,938	.....	1,555,990	98,985,000	6.4	384,632,000	24.7
1933	245,759	63,579	10	48	475,691	48	110	100,653	25,830	20	1,555,474	97,096,000	6.2	368,540,000	23.7
1934	254,457	86,238	11	12	602,976	182	104	109,161	23,148	.....	1,770,721	106,438,000	6.0	395,378,000	22.3
1935	274,313	94,464	8	.....	642,366	98	138	115,772	26,643	.....	1,916,595	110,402,000	5.8	429,374,000	22.4
1936	280,481	110,362	9	84	734,561	92	141	138,076	29,322	.....	2,167,802	119,193,000	5.5	476,813,000	22.0
1937	336,260	115,928	[A]	[A]	854,561	.....	.....	149,084	31,023	2,980	2,447,620	[F]125,610,000	5.1	[F]511,002,000	21.6
1938[E]	330,000	108,000	.....	.....	915,000	.....	.....	146,000	32,000	3,000	2,524,700	.....	....	.....	....

[A] Included with "Others." [B] Alabama and Texas included with Louisiana. [C] Includes Alabama. [D] Includes gas piped from Oklahoma and consumed in Arkansas. [E] Estimated by The OIL WEEKLY, except as otherwise indicated. [F] Preliminary figure of the Bureau of Mines. [G] Figures not available prior to 1922.

ALCO



Characteristics

SIMPLICITY

COMPACTNESS

ECONOMY

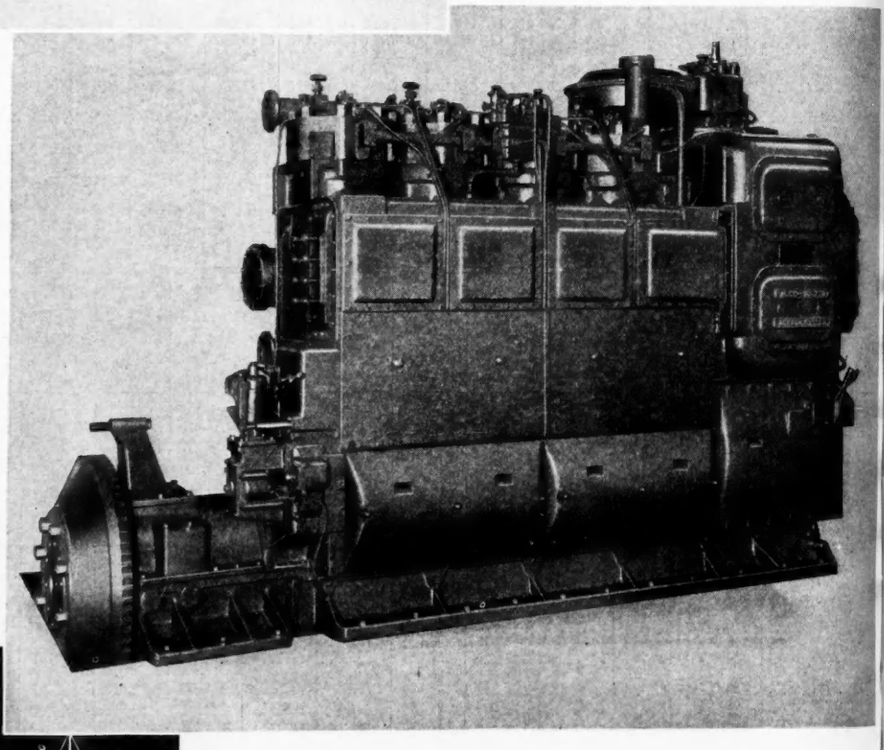
DEPENDABILITY

INSTALLATIONS

"Elizabeth W. Moran"

"Eugenia M. Moran"

Built for the Moran Towing and Transportation Co.

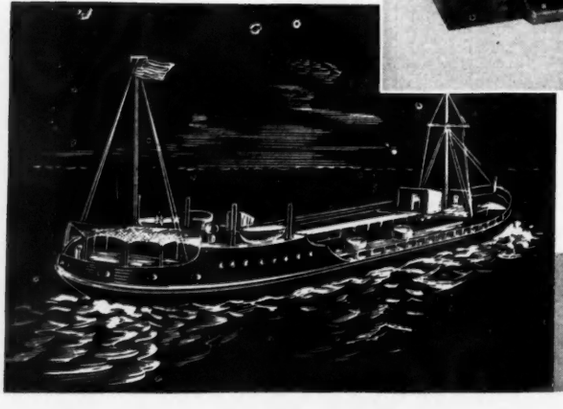


INSTALLATIONS

"Paratex"

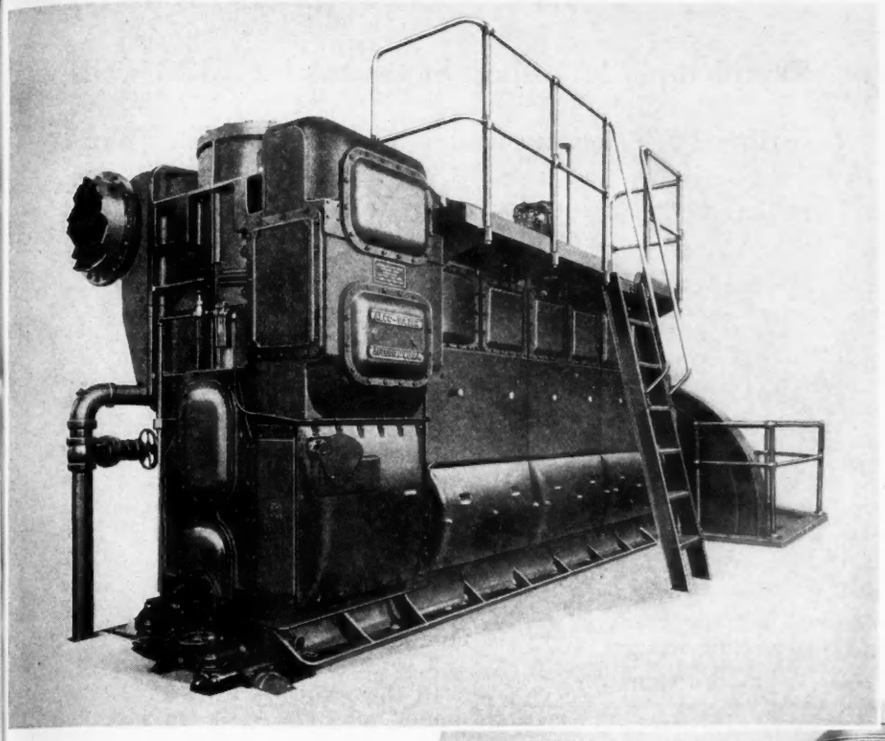
Built for the Gulf Oil Corp.

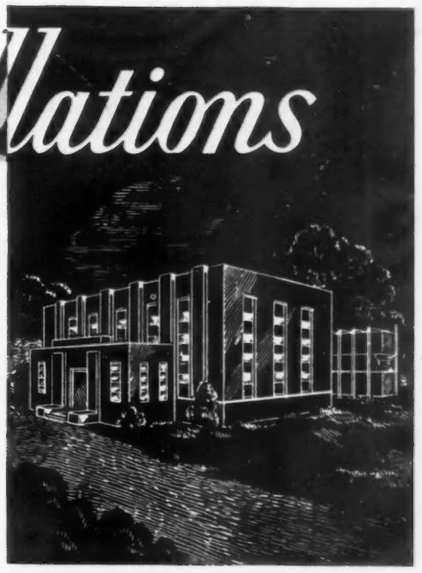
U. S. Navy Tug.



Alco DIESEL ENGINE DIVISION

SULZER *Installations*

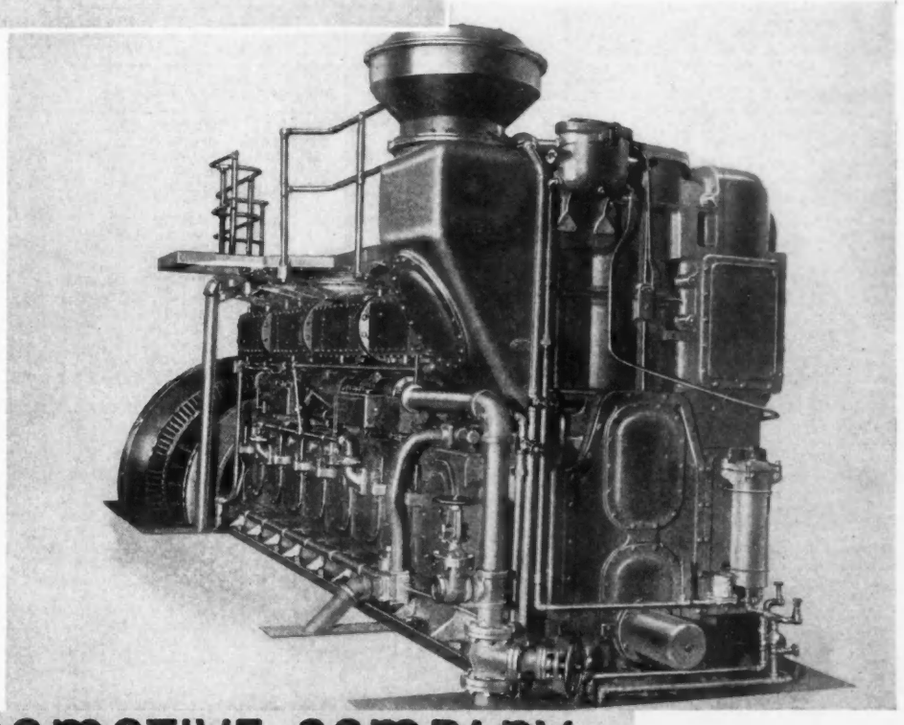




INSTALLATIONS
Municipal Power Plant,
Marblehead, Mass.

Houma Light and Water Plant,
Houma, La.

• One hundred similar illustrations of engines of this identical type could be added by including installations made by Sulzer Bros. Ltd., Winterthur, Switzerland.



INSTALLATIONS
Municipal Power Plant,
Hudson, Mass.

Red Bluff Water Control Power District,
Red Bluff, Texas.

AMERICAN LOCOMOTIVE COMPANY
30 CHURCH STREET, NEW YORK CITY

Drilling at High Level in 1938 Despite Drop

Completions in United States total 27,528 wells, falling 16.9 percent under those of 1937 . . . Work in fields retarded by recession and lower prices.

By L. J. LOGAN, Associate Editor

United States Drilling in 1937 and 1938

Summary and Comparison by Regions and States

(Sources—Compiled from weekly well records published in THE OIL WEEKLY, except California figures, which are from monthly reports of the American Petroleum Institute covering first 11 months, with December estimated by THE OIL WEEKLY.)

STATE OR DISTRICT	Completions			Oil Wells		Gas Wells		Dry Holes		Initial Oil Production, Barrels Daily	
	1937	1938	Percent Change	1937	1938	1937	1938	1937	1938	1937	1938
Arkansas	140	224	+ 60	83	186	2	4	55	34	50,255	155,790
California	1,470	1,270	— 14	1,146	1,014	16	9	308	247	641,873	944,518
Colorado	19	11	— 42	3	5	1	....	15	6	2,546	595
Eastern States	7,994	7,288	— 9	[1]5,354	[2]4,844	1,582	1,186	1,058	1,258	106,492	478,496
Illinois	408	2,032	+398	258	1,576	5	18	145	438	78,262	423,958
Indiana	146	163	+ 12	47	45	34	41	65	77	571	2,097
Kentucky	575	796	+ 38	282	411	119	124	174	261	9,153	38,504
New York	1,253	692	— 45	[3]1,180	[4]621	52	57	21	14	723	1,471
Ohio	1,487	923	— 38	443	268	618	383	426	272	10,369	5,668
Pennsylvania	3,154	2,003	— 36	[5]2,946	[6]1,800	131	118	77	85	4,544	5,318
West Virginia	971	679	— 30	198	123	623	445	150	111	2,870	1,480
Kansas	2,657	1,642	— 38	1,915	1,150	128	58	614	434	2,439,613	1,322,398
Louisiana	987	1,072	+ 9	622	694	105	72	260	306	307,889	307,416
North Louisiana	510	508	— 0.4	326	358	91	59	93	91	156,429	169,923
South Louisiana	477	564	+ 18	296	336	14	13	167	215	151,460	137,493
Michigan	925	999	+ 8	605	588	63	25	257	386	249,294	192,081
Montana	200	79	— 60	145	52	25	12	30	15	12,189	8,868
Nebraska	....	1	....	....	....	....	....	....	1	....	....
New Mexico	674	534	— 21	607	460	29	15	38	59	791,236	233,750
North Dakota	....	1	....	....	....	....	....	....	1	....	....
Oklahoma	2,926	2,087	— 29	2,066	1,303	140	145	720	639	1,945,214	342,164
Southeastern States	17	24	+ 41	....	1	....	7	17	16	.....	240
Alabama	2	1	— 50	....	....	....	....	2	1	.....	.....
Florida	1	....	....	....	....	....	....	1	....	.....	.....
Mississippi	14	21	+ 50	....	....	....	6	14	15	.....	.....
Tennessee	....	2	....	....	1	....	1	....	....	.....	240
Texas	14,997	12,184	— 19	11,529	9,149	456	369	3,012	2,666	17,547,804	12,925,511
East Texas Field	2,466	1,806	— 27	2,380	1,765	2	....	84	41	11,808,553	8,790,884
Rest of East Texas	1,007	487	— 52	860	306	37	35	110	146	531,759	162,954
North Texas	2,254	2,398	+ 6	1,236	1,636	27	17	991	745	252,994	798,980
South Texas	3,594	2,744	— 24	2,533	1,751	143	128	918	865	1,014,479	725,443
Corpus Christi Area	1,456	1,216	— 16	1,133	853	48	68	275	295	656,731	565,653
Laredo Area	1,522	1,057	— 30	1,021	667	90	52	411	338	269,540	140,096
San Antonio Area	616	471	— 23	379	231	5	8	232	232	88,208	19,694
Texas Gulf Coast	1,537	1,522	— 1	1,174	1,187	59	47	304	288	516,055	487,111
Texas Panhandle	838	571	— 32	655	445	153	98	30	28	322,681	219,720
West Texas	2,898	2,290	— 21	2,525	1,921	10	16	363	353	3,088,697	1,724,445
West Central Texas	403	366	— 9	166	138	25	28	212	200	12,586	15,974
Utah	1	4	+300	....	....	1	1	....	3	....	....
Wyoming	105	108	+ 3	65	65	10	14	30	29	46,168	30,840
Total	33,112	27,528	— 16.9	[1]24,140	[2]19,511	2,558	1,917	6,414	6,100	24,140,573	16,942,667

[1]Includes 1451 water-intake and pressure wells in Pennsylvania and New York.
[2]Includes 548 water-intake and pressure wells in Pennsylvania and New York.
[3]Includes 494 water-intake and pressure wells in Allegany district.
[4]Includes 208 water-intake and pressure wells in Allegany district.
[5]Includes 957 water-intake and pressure wells: 854 at Bradford and 103 in Clarion-Venango district.
[6]Includes 340 water-intake and pressure wells: 320 at Bradford and 20 in Clarion-Venango district.

ALTHOUGH the petroleum industry of the United States encountered various important difficulties in 1938, it maintained enough confidence to drill an unusually large number of wells.

The 27,528 wells drilled in 1938 were 16.9 percent under the 33,112 completed in 1937, but they were well above the average annual completions for the past decade and for the past 15 years.

In the past 10 years, 1929-1938, inclusive, United States completions have averaged 21,000 a year; and for the past 15 years, 1924-1938, they have averaged 22,000 annually.

In totaling 27,528 wells, therefore, the completions of 1938 were 31 percent above the average of the past 10 years and 25 percent above the average of the past 15 years.

The 27,528 wells drilled in 1938 were only 20 percent under the all time record of 33,911 completions reported for 1920, a post-war boom year, when drilling was abnormally stimulated by an average crude price of $3.07 a barrel. The average price in 1938 was only about $1.15 a barrel.

Causes of Drilling Drop

The decline in drilling that occurred in 1938, a 16.9 percent decrease from that in 1937, was comparatively large; but the activity of 1937 had been exceptionally great, having almost equaled that of 1920, the most active year in the history of the industry.

Various causes were responsible for the slowing down of field development in 1938, including the general business recession, a small decline in demand for petroleum,

Wells Drilled for Oil and Gas in the United States—1859-1938

Source of data: Cumulative totals for 1859-1922 from Bureau of Mines; rest of figures based on weekly reports of completions, as published regularly by The Oil Weekly.

YEAR	Wells Completed	Oil Wells	Gas Wells	Dry Holes	Initial Production	Average per Well
1859–1922	615,353	481,863[1]	14,542[1]	118,948	18,842,525[2]	....
1923	20,513	13,407	1,892	5,214	5,920,019	395
1924	21,713	14,311	2,250	5,152	3,248,211	227
1925	25,406	16,162	2,644	6,600	4,640,924	183
1926	28,995	17,787	2,848	8,360	3,876,811	218
1927	22,301	13,396	2,586	6,319	4,628,246	345
1928	19,964	10,982	2,733	6,249	6,406,370	583
1929	23,463	13,125	3,109	7,229	6,404,145	488
1930	19,848	10,745	3,006	6,097	10,443,833	972
1931	11,716	6,618	2,090	3,008	31,590,024	4,773
1932	14,290	10,151	1,012	3,127	49,471,119	4,873
1933	12,170	7,681	1,066	3,423	21,888,712	2,852
1934	18,949	12,959	1,342	4,648	31,346,356	2,419
1935	22,669	15,389	1,731	5,549	32,137,971	2,089
1936	26,935	18,937	2,336	5,662	22,295,012	1,179
1937	33,112	24,140[6]	2,558	6,414	24,140,573	1,064
1938	27,528	19,511[6]	1,917	6,100	16,942,667	882
Total	964,925	707,164[4]	49,662[3]	208,099	294,223,518[5]	(2)

[1] Gas wells during the period prior to 1916 were included with oil wells.
[2] Initial production prior to 1916 not available.
[3] Includes only gas wells completed sice 1916.
[4] Includes gas wells completed prior to 1916.
[5] Includes only initial production reported since 1916.
[6] Included with oil wells are water-intake and pressure wells in Pennsylvania and New York totaling 1451 in 1937 and 548 in 1938.

a decrease of about 5 percent in United States crude oil production, a lower average price for crude oil (about $1.15 a barrel against $1.20 in 1937), unfavorable markets for refined products, and the absence of any urgent need to find new oil fields.

Among the numerous factors that affect the extent of drilling, probably the more important are the price of crude and the level of general industrial activity, and both of those factors were down in 1938. Although the average price of crude for the year was down only about 4 or 5 percent, general industrial production was down approximately 25 percent.

Nearly 19,000 Oil Wells

The total of 27,528 wells completed in 1938 represents the sum of completions reported to The Oil Weekly each week by its staff men and published in the field development columns.

The total includes 18,963 oil wells, 548 water-intake and pressure wells drilled in connection with producing operations in New York and Pennsylvania, 1917 gas producing wells, and 6100 dry holes. The 548 water-intake and pressure wells included 208 in the Allegany district, New York, and 340 in Pennsylvania, of which 320 were in the Bradford district and 20 in the Clarion-Venango district.

The 33,112 completions of 1937 had included 22,689 oil wells, 1451 water-intake and pressure wells in New York and Pennsylvania, 2558 gas wells, and 6414 dry holes. The

Wells Drilled in the United States in 1938, by Counties and Fields

California

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Belridge, North	21	20	....	1	26,866
Belridge, South	4	4	....	....	165
Brea-Olinda (Fullerton)	3	1	....	2	32
Buttonwillow (Gas)	1	.....	....	1	.....
Canal	14	14	....	....	32,309
Canfield Ranch	2	1	....	1	750
Capitan	6	6	....	....	2,457
Coalinga	21	12	....	9	39,235
Coles Levee	1	1	....	....	826
Coyote East	4	3	....	1	1,210
Covote, West	6	5	....	1	1,076
Dominguez	18	16	....	2	4,284
Edison	4	2	....	2	285
Elk Hills	3	3	....	....	3,817
El Segundo	23	20	....	3	11,364
Fruitvale	20	18	....	2	4,477
Greeley	17	7	....	10	13,117
Huntington Beach	12	10	....	2	1,514
Inglewood	1	1	....	....	267
Kern River	34	27	....	7	1,163
Kettleman Hills, N. Dome	33	31	....	2	61,048
Long Beach	38	35	....	3	8,795
Lost Hills	10	5	....	5	424
McDonald Island	1	.....	1	.....	.....
McKittrick	7	3	....	4	568
Midway-Sunset	47	37	....	10	3,160
Montebello	37	36	....	1	37,040
Mountain View	6	3	....	3	3,533
Mount Poso	30	15	....	15	3,051
Playa del Rey	1	1	....	....	100
Potrero	3	3	....	....	1,710
Richfield	26	18	....	8	3,241
Rincon	9	9	....	....	2,716
Rio Bravo	26	26	....	....	89,403
Rio Vista	8	.....	8	....	.....
Rosecrans	34	32	....	2	33,368
Round Mountain	52	36	....	16	9,965
San Miguelito	3	3	....	....	2,896
Santa Barbara	1	1	....	....	30
Santa Fe Springs	2	2	....	....	141
Santa Maria	97	87	....	10	80,471
Seal Beach	1	1	....	....	194

(Continued in next column)

California—(Continued)

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Semi-Tropic	1	.....	....	1	.....
Shiells-Canyon	1	1	....	....	117
Ten Section (Stevens)	25	25	....	....	60,820
Torrance	134	132	....	2	41,062
Tupman	1	1	....	....	3,752
Ventura Avenue	23	22	....	1	25,591
Ventura-Newhall	17	12	....	5	4,095
Wasco	5	2	....	3	9,528
Wilmington	266	264	....	2	312,485
Misc. Drilling (Wildcats)	110	.....	....	110	.....
Total, 1938	1,270	1,014	9	247	944,518
Total, 1937	1,470	1,146	16	308	641,873

Arkansas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bradley	1	.....	....	1	.....
Calhoun	1	.....	....	1	.....
Cleveland	2	.....	....	2	.....
Columbia:					
Buckner	6	6	....	....	7,238
Magnolia Village	10	8	....	2	3,034
Wildcats	3	1	....	2	892
Stephens	2	2	....	....	20
Crittenden	1	.....	....	1	.....
Dallas	1	.....	....	1	.....
Desha	1	.....	....	1	.....
Franklin	2	.....	1	1	.....
Hempstead	2	.....	....	2	.....
Johnson	1	.....	1	....	.....
Lafayette	2	1	....	1	2,928
Lonoke	1	.....	....	1	.....
Miller County	43	40	1	2	21,993

(Continued in next column)

Arkansas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Nevada:					
Irma	1	1	....	....	5
Troy	4	4	....	....	335
Others	4	2	....	2	125
Ouachita:					
Barham	1	1	....	....	13
Smackover	1	1	....	....	27
Others	3	.....	....	3	.....
Pulaski	1	.....	....	1	.....
Saline	1	.....	....	1	.....
Union:					
Rainbow City	10	6	1	3	3,912
Schuler	111	109	....	2	115,108
Smackover	2	2	....	....	115
Urbana	3	2	....	1	45
Others	3	.....	....	3	.....
Total, 1938	224	186	4	34	155,790
Total, 1937	140	83	2	55	50,255

Colorado

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Cheyenne	1	.....	....	1	.....
Fremont	3	3	....	....	23
Huerfano	1	.....	....	1	.....
Larimer	1	.....	....	1	.....
Las Animas	1	.....	....	1	.....
Lincoln	1	.....	....	1	.....
Moffat (Iles Dome)	1	1	....	....	80
Rio Blanco	1	1	....	....	492
Routt (Steamboat Springs Anticline)	1	.....	....	1	.....
Total, 1938	11	5	....	6	595
Total, 1937	19	3	1	15	2,546

1451 intake and pressure wells of 1937 included 494 in the Allegany district of New York and 957 in Pennsylvania, of which 854 were at Bradford and 103 in the Clarion-Venango area.

Initial Production Lower

The 18,963 new oil wells of 1938, on completion, indicated daily producing ability aggregating 16,942,667 barrels, or 882 barrels daily per well, on the average. The new wells of the year therefore were not quite as prolific as those of 1937, when the initial producing ability of the 22,689 new oil wells averaged 1064 barrels daily.

This slight decline in the average initial production per well extended a trend that had been under way five years previously, or since the prolific wells of the East Texas field began to wane as a dominant influence in the drilling picture. In 1931 and 1932 the East Texas development was at its height, and because of the large number of completions in that area, the average initial production per well was nearly 5,000 barrels daily for the whole United States. But subse-

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

Eastern States Summary

State	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Illinois	2,032	1,576	18	438	423,958
Indiana	163	45	41	77	2,097
Kentucky	796	411	124	261	38,504
New York	692	621	57	14	1,471
Ohio	923	268	383	272	5,668
Pennsylvania	2,003	1,800	118	85	5,318
West Virginia	679	123	445	111	1,480
Total, 1938	7,288	4,844	1,186	1,258	478,496
Total, 1937	7,994	5,354	1,582	1,058	106,492

Illinois

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bond	10	.....	1	9	.....
Brown	2	.....	....	2	.....
Bureau	1	.....	....	1	.....
Champaign	4	.....	2	2	.....
Cass	1	.....	....	1	.....
Christian	6	.....	....	6	.....
Clark	20	4	4	12	153
Clay	139	126	....	13	58,322
Clinton	415	375	....	40	53,095
Coles	7	.....	....	7	.....
Crawford	19	8	1	10	44
DeKalb	2	.....	....	2	.....
Cumberland	3	.....	....	3	.....
Edgar	4	.....	....	4	.....
Edward	1	.....	....	1	.....
Effingham	8	.....	....	8	.....
Fayette	387	344	....	43	73,528
Franklin	6	.....	....	6	.....
Fulton	1	.....	....	1	.....
Greene	1	.....	....	1	.....
Hamilton	1	.....	....	1	.....
Hancock	1	.....	....	1	.....
Iroquois	1	.....	....	1	.....
Jackson	2	.....	....	2	.....
Jasper	6	.....	....	6	.....
Jefferson	53	34	....	19	7,485
Lawrence	22	6	8	8	213
Macon	2	.....	....	2	.....
Macoupin	8	.....	1	7	.....
Madison	4	.....	....	4	.....
Marion	525	456	....	69	128,775
McDonough	7	2	....	5	3
Monroe	1	.....	....	1	.....
Montgomery	7	.....	1	6	.....
Morgan	4	.....	....	4	.....
Moultrie	2	.....	....	2	.....
Perry	3	.....	....	3	.....
Pope	1	.....	....	1	.....
Randolph	2	.....	....	2	.....
Richland	190	149	....	41	71,544
Rock Island	1	.....	....	1	.....
Saline	3	.....	....	3	.....
Sangamon	1	.....	....	1	.....
Schuyler	1	.....	....	1	.....
Shelby	11	.....	....	11	.....
St. Clair	9	6	....	3	585
Vermilion	1	.....	....	1	.....
Wabash	19	7	....	12	310
Warren	2	.....	....	2	.....
Washington	17	.....	....	17	.....
Wayne	85	59	....	26	29,901
White	3	.....	....	3	.....
Total, 1938	2,032	1,576	18	438	423,958
Total, 1937	408	258	5	145	78,262

New York

County or District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegany Dist.	634	621	10	3	1,471
New York-Pennsylvania Gas Field	37	.....	28	9	.....
Schuyler	1	.....	....	1	.....
Steuben	20	.....	19	1	.....
Total, 1938	692	621	57	14	1,471
Total, 1937	1,253	1,180	52	21	723

Pennsylvania

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegheny	25	4	12	9	11
Beaver	8	2	3	3	2
Bradford	1,571	1,571	....	....	4,444
Butler	67	43	9	15	185
Clarion-Venango	171	153	6	12	243
Fayette	9	.....	7	2	.....
Greene	48	8	32	8	258
Indiana	2	.....	2	....	.....
Jefferson	1	.....	....	1	.....
New York-Pennsylvania Gas Field	37	1	16	20	5
Potter	11	.....	6	5	.....
Tioga-Wayne	2	.....	1	1	.....
Warren	11	6	1	4	14
Washington	40	12	23	5	156
Total, 1938	2,003	1,800	118	85	5,318
Total, 1937	3,154	2,946	131	77	4,544

Kentucky

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Breckenridge	16	1	5	10	5
Butler	66	30	1	35	553
Caldwell	1	.....	....	1	.....
Daviess	122	76	4	42	11,105
Flliott	2	2	....	....	10
Floyd	63	16	43	4	341
Grayson	11	.....	4	7	.....
Hancock	58	28	8	22	517
Henderson	73	55	2	16	21,738
Hopkins	1	.....	....	1	.....
Johnson	4	.....	3	1	.....
Knott	12	.....	10	2	.....
Lawrence	7	4	3	....	86
Lee	51	42	3	6	703
Logan	1	.....	....	1	.....
Magoffin	4	4	....	....	18
Marion	1	1	....	....	5
Martin	41	19	15	7	466
McLean	59	33	3	23	1,445
Muhlenberg	4	1	....	3	3
Ohio	158	77	12	69	1,377
Perry	1	.....	1	....	.....
Pike	5	.....	5	....	.....
Powell	22	19	....	3	99
Todd	1	.....	....	1	.....
Union	2	.....	....	2	.....
Wayne	1	1	....	....	25
Webster	9	2	2	5	8
Total, 1938	796	411	124	261	38,504
Total, 1937	575	282	119	174	9,153

Indiana

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Blackford	1	.....	1	....	.....
Clay	1	.....	....	1	.....
Daviess	10	1	3	6	12
Dearborn	1	.....	1	....	.....
Decatur	3	.....	3	....	.....
DeKalb	1	.....	....	1	.....
Gibson	4	1	....	3	9
Greene	2	.....	....	2	.....
Hancock	4	.....	4	....	.....
Harrison	5	.....	1	4	.....
Henry	1	.....	1	....	.....
Huntington	2	1	....	1	12
Jasper	2	.....	....	2	.....
Jay	3	3	....	....	20
Jennings	1	.....	1	....	.....
Knox	12	1	8	3	10
LaGrange	1	.....	....	1	.....
Parke	1	.....	....	1	.....
Perry	21	5	2	14	35
Pike	13	6	1	6	59
Posey	16	9	....	7	833
Randolph	1	.....	....	1	.....
Rush	4	.....	2	2	.....
Shelby	7	.....	4	3	.....
Spencer	6	2	1	3	21
Sullivan	23	3	8	12	39
Vanderburg	4	2	....	2	27
Vigo	11	11	....	....	1,020
Wabash	2	.....	....	2	.....
Total, 1938	163	45	41	77	2,097
Total, 1937	146	47	34	65	571

West Virginia

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Barbour	1	.....	1	....	.....
Boone	24	7	14	3	41
Braxton	11	.....	10	1	.....
Cabell	49	1	47	1	20
Calhoun	48	10	32	6	144
Clay	13	7	4	2	110
Doddridge	8	2	3	3	8
Fayette	1	.....	....	1	.....
Gilmer	75	6	54	15	34
Hancock	3	2	....	1	7
Harrison	5	1	3	1	5
Jackson	3	.....	1	2	.....
Kanawha	127	6	119	2	43
Lewis	6	1	4	1	10
Lincoln	25	5	19	1	72
Logan	6	.....	6	....	.....
Marion	6	.....	3	3	.....
Marshall	5	.....	3	2	.....
Mason	1	.....	1	....	.....
Mingo	4	.....	4	....	.....
Monongalia	15	3	10	2	4
Nichols	5	.....	4	1	.....
Pleasanta	31	11	7	13	300
Putnam	8	.....	8	....	.....
Ritchie	72	31	26	15	436
Roane	20	5	5	10	110
Tyler	16	7	1	8	42
Upshur	4	.....	4	....	.....
Wayne	19	1	18	....	6
Wetzel	33	1	27	5	25
Wirt	23	11	6	6	46
Wood	12	5	1	6	17
Total, 1938	679	123	445	111	1,480
Total, 1937	971	198	623	150	2,879

quently, the average has steadily declined, from year to year.

In 1938 Illinois was conspicuous in the drilling picture, but the wells there have relatively small initial production and soon go on the pump.

The comparatively low average initial production per well in 1938 also reflected the continued development of the more settled producing areas, as crude prices held up well until the latter part of the year.

Illinois Active

Although drilling was smaller in 1938 than in 1937 for the United States as a whole, it was greater for several states and districts.

The most noteworthy increase in drilling occurred in Illinois, where development of new, flush fields was aggressive and on the increase as the year progressed. The state furnished 2032 completions in 1938, or five times as many as the 408 of 1937.

As the year ended, Illinois was accounting for nearly 20 percent of all well completions in the United States. The state at that time ranked second to Texas in current completions and was fur-

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

Ohio

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Ashland	22	1	19	2	10
Ashtabula	3	.....	2	1	.....
Athens	86	10	45	31	193
Belmont	14	3	6	5	11
Columbiana	1	.....	.....	1	.....
Coshocton	18	5	5	8	163
Cuyahoga	6	2	3	1	58
Delaware	1	.....	1	.....	.....
Fairfield	13	.....	10	3	.....
Gallia	4	.....	1	3	.....
Guernsey	44	2	27	15	12
Hancock	2	.....	2	.....	.....
Harrison	2	.....	.....	2	.....
Hocking	3	2	1	.....	7
Holmes	5	.....	2	3	.....
Huron	2	1	.....	1	1
Jefferson	3	1	.....	2	1
Knox	63	25	26	12	1,065
Lawrence	8	.....	8	.....	.....
Licking	134	78	29	27	2,260
Lorain	30	1	14	15	70
Medina	30	16	2	12	273
Meigs	33	.....	18	15	.....
Miami	1	.....	.....	1	.....
Monroe	38	13	12	13	132
Morgan	35	10	13	12	28
Muskingum	24	6	11	7	124
Noble	27	4	16	7	80
Perry	41	21	11	9	308
Putnam	7	6	.....	1	128
Richland	2	.....	1	1	.....
Ross	1	.....	.....	1	.....
Sandusky	1	.....	1	.....	.....
Scioto	1	.....	.....	1	.....
Seneca	14	5	5	4	192
Stark	25	.....	21	4	.....
Summit	11	.....	8	3	.....
Trumbull	1	.....	.....	1	.....
Tuscarawas	18	.....	14	4	.....
Vinton	5	.....	4	1	.....
Washington	134	54	41	39	537
Wayne	6	1	3	2	5
Wood	3	1	1	1	10
Wyandot	1	.....	.....	1	.....
Total, 1938	923	268	383	272	5,668
Total, 1937	1,487	443	618	426	10,369

Kansas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Barber	21	4	9	8	3,667
Barton	262	210	1	51	273,049
Butler	71	43	.....	28	2,450
Chase	1	.....	.....	1	.....
Chautauqua	6	2	1	3	9
Clark	2	.....	.....	2	.....
Coffey	3	1	.....	2	20
Cowley	74	41	2	31	43,295
Elk	2	1	.....	1	13
Ellis	131	110	.....	21	232,602
Ellsworth	44	34	.....	10	51,461
Finney	2	2	.....	.....	1,208
Ford	1	.....	1	.....	.....
Graham	3	1	.....	2	2,105
Grant	14	.....	14	.....	.....
Greenwood	50	32	.....	18	674
Harper	1	.....	.....	1	.....
Harvey	27	21	.....	6	15,675
Jackson	1	.....	.....	1	.....
Jewell	1	.....	.....	1	.....
Kearney	5	.....	5	.....	.....
Kingman	2	1	.....	1	50

(Continued in next column)

Kansas—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Lane	1	.....	.....	1	.....
Marion	9	5	.....	4	359
McPherson	66	57	1	8	16,876
Mead	1	.....	.....	1	.....
Ness	15	8	.....	7	5,311
Norton	2	.....	.....	2	.....
Osage	1	.....	.....	1	.....
Pawnee	8	4	.....	4	1,865
Phillips	1	.....	.....	1	.....
Pottawatomie	1	.....	.....	1	.....
Pratt	15	5	2	8	3,074
Reno	38	23	3	12	14,308
Rice	175	134	4	37	193,039
Riley	1	.....	.....	1	.....
Rooks	27	11	.....	16	7,485
Rush	6	2	.....	4	770
Russell	217	188	.....	29	219,367
Saline	1	.....	.....	1	.....
Scott	2	2	.....	.....	886
Sedgwick	30	15	2	13	9,969
Stafford	187	139	.....	48	215,045
Stevens	12	.....	12	.....	.....
Sumner	23	10	.....	13	6,797
Thomas	1	.....	.....	1	.....
Trego	1	.....	.....	1	.....
Woodson	77	44	1	32	969
Total, 1938	1,642	1,150	58	434	1,322,398
Total, 1937	2,657	1,915	128	614	2,439,613

Louisiana Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
North	508	358	59	91	169,923
South	564	336	13	215	137,493
Total, 1938	1,072	694	72	306	307,416
Total, 1937	987	622	105	260	307,889

North Louisiana

Parish and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bienville:					
Driscoll	1	.....	1	.....	.....
Wildcats	3	.....	1	2	.....
Bossier:					
Antrim	1	1	.....	.....	300
Bellevue	10	9	.....	1	170
Sligo	12	10	2	.....	4,516
Caddo:					
Blanchard	4	3	1	.....	1,378
Caspiana	1	.....	.....	1	.....
Dixie	7	4	.....	3	150
Pine Island	72	60	3	9	3,941
Rodessa	25	24	1	.....	8,890
Shreveport	8	3	1	4	2,289
Unclassified	3	1	1	1	499
Caldwell	2	.....	.....	2	.....
Claiborne:					
Homer	2	2	.....	.....	19
Lisbon	104	98	.....	6	80,552
Sugar Creek	5	.....	4	1	.....
Concordia	1	.....	.....	1	.....
De Soto:					
Grogan Area	3	.....	.....	3	.....
Dolet Hills	1	.....	1	.....	.....
Logansport	2	.....	2	.....	.....
Naborton	5	3	2	.....	201
Bull Bayou	10	3	2	5	255
Unclassified	7	.....	.....	7	.....

(Continued in next column)

North Louisiana—(Continued)

Parish and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Franklin	2	.....	.....	2	.....
Grant:					
Urania	7	4	.....	3	135
Others	1	.....	.....	1	.....
La Salle:					
Urania	11	9	.....	2	313
Lincoln	17	15	.....	2	16,196
Madison	2	.....	.....	2	.....
Morehouse:					
Monroe	16	.....	16	.....	.....
Natchitoches	2	.....	.....	2	.....
Ouachita:					
Monroe	3	.....	2	1	.....
Rapides	1	.....	.....	1	.....
Red River:					
East Point	1	.....	.....	1	.....
Bull Bayou	4	2	.....	2	80
Wildcats	2	.....	1	1	.....
Sabine:					
Blue Lake-West Zwolle	3	1	.....	2	965
Converse	6	5	.....	1	163
Zwolle	31	18	.....	13	2,711
Tensas	2	.....	.....	2	.....
Union:					
Monroe	18	.....	18	.....	.....
Others	1	.....	.....	1	.....
Webster:					
Cartersville	1	1	.....	.....	40
Cotton Valley	85	81	.....	4	45,881
Sibley	1	.....	.....	1	.....
Shongaloo	1	1	.....	.....	279
Winn	1	.....	.....	1	.....
Total, 1938	508	358	59	91	169,923
Total, 1937	510	326	91	93	156,429

Louisiana Gulf Coast

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Abbeville	5	3	.....	2	670
Baton Rouge	7	5	.....	2	2,160
Anse La Butte	11	4	.....	7	340
Bay St. Elaine	4	1	.....	3	385
Bayou Blue	5	1	.....	4	360
Bayou Bouillon	1	1	.....	.....	50
Bayou des Allemandes	4	2	.....	2	762
Bancroft	5	4	1	.....	1,826
Big Lake	4	2	.....	2	197
Black Bayou	3	3	.....	.....	850
Bosco	4	3	.....	1	410
Caillou Island	3	2	.....	1	921
Cameron Meadows	8	6	.....	2	1,715
Chacahoula	2	2	.....	.....	882
Chalkley	1	1	.....	.....	32
Charenton	40	30	1	9	5,832
Cheneyville	1	1	.....	.....	515
Choctaw	7	4	.....	3	2,393
Creole	4	3	.....	1	1,379
Darrow	12	5	.....	7	3,360
Dog Lake	4	3	.....	1	1,904
Dulac	1	1	.....	.....	72
East Hackberry	11	5	1	5	2,293
Edgerly	2	.....	.....	2	.....
English Bayou	3	2	.....	1	640
Fausse Point	1	1	.....	.....	25
Four Isle	2	.....	.....	2	.....
Garden Island Bay	6	5	.....	1	4,850
Gibson	8	8	.....	.....	6,029

(Continued on next page)

nishing about one half as many new wells as Texas.

Although Illinois was less active in the earlier months of 1938, it finally achieved a high rank among the states in total completions for the year. The 2032 completions in Illinois in 1938 were exceeded only by the 12,184 in Texas and 2087 in Oklahoma. The Illinois completions outnumbered the 2003 in Pennsylvania, 1642 in Kansas, 1270 in California, 1072 in Louisiana, 999 in Michigan, and lesser totals of other states.

Gains in Other States

Other states that had more drilling in 1938 than in 1937 included Kentucky and Indiana, where development was stimulated by the oil field discoveries in adjoining Illinois. Kentucky had 796 completions in 1938, or 38 percent more than the 575 in 1937, and Indiana had 163, compared with 146, an increase of 12 percent.

Michigan also was more active in 1938 than the year before, completions having risen 8 percent, from 925 in 1937 to 999 in 1938.

Although field work was curtailed in 1938 in most sections of the Mid-Continent, it was increased in a few areas of that region.

In Arkansas, for example, 224 wells were completed in 1938, or

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

Louisiana Gulf Coast (Continued)

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Gillis	2	1	1	....	85
Grand Bay	2	2	....	....	530
Gueydan	2	.....	....	2	.....
Horseshoe Bayou	3	2	....	1	686
Iowa	1	1	....	....	112
Jeanerette	3	1	....	2	440
Jefferson Davis Parish	5	3	....	2	796
Jefferson Island	3	2	....	1	752
Jennings	68	54	1	13	19,705
Lafitte	13	13	....	....	18,746
Lake Barre	2	1	....	1	20
Lake Long	4	4	....	....	1,288
Lake Hermitage	2	.....	....	2	.....
Lake Pelto	3	2	....	1	1,011
Lake Washington	1	.....	....	1	.....
Leesville	4	3	....	1	2,249
Lirette	5	2	1	2	102
Lockport	4	2	....	2	159
New Iberia	29	22	....	7	9,963
North Crowley	16	11	....	5	6,517
North Tepetate	2	2	....	....	241
Pine Prairie	1	.....	....	1	.....
Port Barre	6	6	....	....	2,207
Potash	12	.....	....	12	.....
Quarantine Bay	2	2	....	....	497
Raceland	4	3	....	1	1,628
Roanoke	7	4	1	2	1,348
South Crowley	1	1	....	....	35
South Elston	1	.....	....	1	.....
South Houma	1	1	....	....	444
South Jennings	1	1	....	....	50
South Roanoke	1	1	....	....	84
Sorrento	8	3	1	4	624
Starks	4	2	....	2	174
Sulphur	12	9	1	2	2,527
Sweet Lake	2	1	1	....	312
Tepetate	3	3	....	....	731
Timbalier Bay	1	1	....	....	336
University	1	.....	....	1	.....
Valentine	14	7	1	6	4,074
Venice	5	4	....	1	1,318
Villa Platte	28	26	....	2	10,660
Vinton	9	2	....	7	115
Welsh	6	2	....	4	14
West Gueydan	3	1	....	2	75
West Hackberry	20	14	2	1	3,470
West Lake Verrett	2	1	....	1	163
White Castle	4	3	....	1	1,602
Woodlawn	1	1	....	....	123
Parish: (Wildcats)					
Acadia	3	.....	....	3	.....
Avoyelles	2	.....	....	2	.....
Beauregard	2	.....	....	2	.....
Calcasieu	11	.....	....	11	.....
Cameron	6	.....	....	6	.....
Convent	1	.....	....	1	.....
East Baton Rouge	1	.....	....	1	.....
Iberia	1	.....	....	1	.....
Jefferson Davis	7	.....	....	7	.....
Lafayette	1	.....	....	1	.....
La Fourche	1	1	....	....	628
St. Bernard	2	.....	....	2	.....
St. James	1	.....	....	1	.....
St. Landry	3	.....	....	3	.....
St. Mary	4	.....	....	4	.....
St. Martin	5	.....	....	5	.....
St. Tammany	3	.....	....	3	.....
Terrebonne	3	.....	....	3	.....
St. John	1	.....	....	1	.....
Vermilion	2	.....	....	2	.....
Vernon	1	.....	....	1	.....
Total, 1938	564	336	13	215	137,493
Total, 1937	477	296	14	167	151,460

Michigan

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegan	303	181	....	121	46,803
Aranac	30	17	1	12	2,809
Barry	2	.....	....	2	.....
Bay	10	3	....	7	53
Berrien	1	.....	....	1	.....
Cass	3	.....	....	3	.....
Clara	66	42	8	16	50,731
Crawford	1	.....	....	1	.....
Gladwin	194	157	....	37	25,566
Gratiot	8	.....	2	6	.....
Huron	3	.....	....	3	.....
Ingham	1	.....	....	1	.....
Ionia	1	.....	....	1	.....
Iosco	1	1	....	....	360
Isabella	46	27	3	16	6,343
Kalamazoo	4	.....	....	4	.....
Kent	5	1	....	4	45
Lake	2	.....	....	2	.....
La Peer	1	.....	....	1	.....
Livingston	1	.....	....	1	.....
Macomb	2	.....	....	2	.....
Mason	1	.....	....	1	.....
Macosta	6	.....	....	6	.....
Midland	71	42	....	29	11,322
Missaukee	2	.....	....	2	.....
Monroe	3	1	....	2	5
Montcalm	25	2	11	12	95
Muskegon	1	.....	....	1	.....
Newaygo	3	.....	....	3	.....
Ogemaw	42	32	....	10	3,084
Osceola	3	.....	....	3	.....
Ottawa	13	.....	....	13	.....
Roscommon	5	.....	....	5	.....
Saginaw	8	.....	....	8	.....
Sanilac	1	.....	....	1	.....
Shiawassee	2	.....	....	2	.....
St. Clair	5	.....	....	5	.....
Tuscola	3	2	....	1	120
Van Buren	118	80	....	38	44,745
Washtenaw	1	.....	....	1	.....
Waxford	1	.....	....	1	.....
Total, 1938	999	588	25	386	192,081
Total, 1937	925	605	63	257	249,294

Montana

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Big Horn: Hardin	2	.....	2	....	.....
Blaine: Wayne Creek Structure	1	.....	....	1	.....
Fallon	1	.....	1	....	.....
Fergus	2	.....	....	2	.....
Glacier: Cut Bank	34	23	6	5	2,529
Phillips	1	.....	....	1	.....
Teton: Dupuyer Structure	1	.....	....	1	.....
Toole: Kevin-Sunburst	36	28	3	5	6,239
Yellowstone: Mossir Dome	1	1	....	....	100
Total, 1938	79	52	12	15	8,868
Total, 1937	200	145	25	30	12,189

New Mexico

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Chaves	8	.....	....	8	.....
Curry	3	.....	....	3	.....
Eddy	75	62	2	11	8,567
Lea: Cooper	13	11	....	2	11,731
Eaves	1	.....	1	....	.....
Langlie-East Jal	54	52	....	2	18,657
East Jal-Mattix	31	28	3	....	9,659
Eunice	71	66	3	2	62,871
Hardy (N. Eunice)	37	37	....	....	7,843
Hobbs	2	2	....	....	1,100
Lea-Lynch	1	.....	....	1	.....
Lovington	1	.....	1	....	.....
Lynn	4	3	1	....	2,218
Maljamar	7	6	....	1	218
Monument	21	20	....	1	14,473
Penrose (S. Eunice)	54	54	....	....	15,592
Rhoades	4	1	3	....	30
Skelly	5	4	....	1	1,163
Vacuum	111	107	....	4	78,987
Wildcats	20	2	....	18	336
McKinley	2	1	....	1	122
Otero	1	.....	....	1	.....
Rio Arriba	2	.....	....	2	.....
San Juan: Rattlesnake	1	1	....	....	35
Wildcats	5	3	1	1	148
Total, 1938	534	460	15	59	233,750
Total, 1937	674	607	29	38	791,236

Oklahoma

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Adair	1	.....	....	1	.....
Atoka	5	.....	....	5	.....
Beckham	5	.....	1	4	.....
Bryan	1	.....	....	1	.....
Caddo	60	38	15	7	17,291
Carter	84	66	3	15	5,190
Choctaw	2	.....	....	2	.....
Cleveland	4	1	....	3	238
Coal	11	5	2	4	6,595
Comanche	19	8	....	11	35
Cotton	5	1	1	3	28
Creek	173	100	14	59	6,024
Ellis	1	.....	....	1	.....
Garfield	10	4	1	5	249
Garvin	15	10	....	5	678
Grady	14	11	....	3	597
Grant	4	1	....	3	1,131
Greer	2	.....	....	2	.....
Haskell	5	.....	3	2	.....
Hughes	34	10	4	20	1,055
Jackson	4	4	....	....	318
Jefferson	31	19	1	11	441
Johnston	2	.....	....	2	.....
Kay	20	9	1	10	2,912
Kiowa	12	1	....	11	3
Latimer	3	.....	2	1	.....
Le Flore	1	.....	1	....	.....
Lincoln	95	76	3	16	9,036
Logan	16	4	3	9	658
Love	1	.....	....	1	.....
Marshall	5	1	....	4	8
McClain	1	.....	....	1	.....
McIntosh	1	.....	....	1	.....
Murray	2	1	....	1	320
Muskogee	48	16	11	21	242
Noble	22	15	....	7	19,000

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60 percent more than the 140 finished in the previous year.

North Texas was unique among the major districts of Texas in showing increased drilling in 1938, completions there having increased 6 percent, from 2254 in 1937 to 2398 in 1938, as the development of the deep pay at K-M-A was further reflected.

South Louisiana continued to be a favored area for drilling, and completions were up 18 percent, from 477 in 1937 to 564 in 1938.

Wyoming ended the year with 108 completions, 3 percent more than the 105 completed in 1937, while Utah showed an increase to 4 from 1 in 1937.

The only other state to show an increase in drilling was Mississippi, where a 50 percent gain raised completions from 14 in 1937 to 21 in 1938.

Areas of Less Drilling

States other than those mentioned had less drilling in 1938 than in the previous year.

California had over-production

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

Oklahoma—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Okfuskee	65	25	7	33	1,176
Oklahoma	60	49	2	9	37,796
Okmulgee	155	83	9	63	1,659
Osage	129	70	16	43	3,353
Pawnee	36	18	2	16	7,673
Payne	33	21	1	11	77,130
Pittsburg	7	.....	3	4	.....
Pontotoc	235	172	14	49	38,003
Pottawatomie	241	192	7	42	50,242
Seminole	272	202	5	65	49,406
Sequoia	1	.....	1	....	.....
Stephens	72	44	6	22	1,789
Tillman	17	7	....	10	1,506
Tulsa	34	14	6	14	190
Wagoner	11	5	....	6	192
Total, 1938	2,087	1,303	145	639	342,164
Total, 1937	2,926	2,066	140	720	1,945,214

North Dakota

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Williams	1	.....	....	1	.....
Total, 1938	1	.....	....	1	.....
Total, 1937	.....	.....	....	....	.....

Nebraska

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Lincoln	1	.....	....	1	.....
Total, 1938	1	.....	....	1	.....
Total, 1937	.....	.....	....	....	.....

Southeastern States Summary

State	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Alabama	1	.....	....	1	.....
Mississippi	21	.....	6	15	.....
Tennessee	2	1	1	....	240
Total, 1938	24	1	7	16	240
Total 1937	17	.....	....	17	.....

Alabama

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Houston	1	.....	....	1	.....
Total 1938	1	.....	....	1	.....
Total, 1937	2	.....	....	2	.....

Florida

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Total, 1938	.....	.....	....	....	.....
Total, 1937	1	.....	....	1	.....

Mississippi

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Boliver	1	.....	....	1	.....
Clarke	1	.....	....	1	.....
George	1	.....	....	1	.....
Hinds:					
Edwards	1	.....	....	1	.....
Flora	1	.....	....	1	.....
Jackson	1	.....	1	....	.....
Wildcats	2	.....	....	2	.....
Jones	1	.....	....	1	.....
Lamar	3	.....	....	3	.....
Rankin:					
Jackson	5	.....	5	....	.....
Simpson	1	.....	....	1	.....
Wilkinson	2	.....	....	2	.....
Yalabousha	1	.....	....	1	.....
Total, 1938	21	.....	6	15	.....
Total, 1937	14	.....	....	14	.....

Tennessee

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Clay	1	1	....	....	240
Scott	1	.....	1	....	.....
Total, 1938	2	1	1	....	240
Total, 1937	.....	.....	....	....	.....

Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
E. Texas Field	1,806	1,765	.....	41	8,790,884
E. Texas, outside E Texas Field	487	306	35	146	162,954
North	2,398	1,636	17	745	798,980
South	2,744	1,751	128	865	725,443
Gulf Coast	1,522	1,187	47	288	487,111
Panhandle	571	445	98	28	219,720
West	2,290	1,921	16	353	1,724,445
West Central	366	138	28	200	15,974
Total, 1938	12,184	9,149	369	2,666	12,925,511
Total, 1937	14,997	11,529	456	3,012	17,547,804

North Texas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Archer	174	74	....	100	4,613
Hull-Silk	3	3	....	....	1,045
Jackson-Canyon	3	3	....	....	708
K-M-A	33	31	....	2	21,247
Panther	12	11	....	1	9,343
Baylor	10	.....	....	10	.....
Childress	1	.....	....	1	.....
Clay	162	101	....	61	12,477
Cooke	146	107	3	36	7,410
Cottle	2	.....	....	2	.....
Denton	9	1	....	8	27
Foard:					
Johnson	1	.....	....	1	.....
Wildcats	8	1	2	5	360
Grayson:					
Collinsville	1	1	....	....	259
Wildcats	3	.....	....	3	.....
Haskell	11	4	....	7	1,700

(*Continued in next column*)

North Texas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Jack	260	150	7	103	30,798
Knox	3	.....	....	3	.....
Montague	70	49	1	20	5,460
Throckmorton	36	9	....	27	64
Wichita	252	120	....	132	6,871
K-M-A	801	759	....	42	627,359
Jackson-Canyon	8	7	....	1	3 791
Wilbarger	65	40	....	25	19,003
Wise	10	2	....	8	2,811
Young	314	163	4	147	43,634
Tota 1938	2,398	1,636	17	745	798 980
Total, 1937	2,254	1,236	27	991	252,994

South Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Corpus Christi	1,216	853	68	295	565,653
Laredo	1,057	667	52	338	140,096
San Antonio	471	231	8	232	19,694
Total, 1938	2,744	1,751	128	865	725,443
Total, 1937	3,594	2,533	143	918	1,014,479

South Texas: Corpus Christi Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Aransas	45	40	....	5	22,778
Bee	26	5	2	19	481
Brooks	20	9	....	11	1,566
Calhoun	52	45	1	6	25,689
Colorado	1	.....	....	1	.....
De Witt	7	.....	....	7	.....
Goliad:					
Weser	1	1	....	....	65
Wildcats	14	2	....	12	285
Hidalgo	39	24	11	4	9,575
Jackson	26	16	1	9	4,952
Jim Wells	110	61	14	35	34,742
Karnes	18	9	1	8	3,175
Kennedy	1	.....	....	1	.....
Kleberg	4	.....	1	3	.....
Lavaca	4	.....	....	4	.....
Live Oak	92	30	4	58	6.903
Nueces	349	269	20	60	116,711
Refugio	213	191	3	19	262,936
San Patricio	87	71	1	15	36,875
Victoria	105	80	9	16	38,920
Willacy	2	.....	....	2	.....
Total, 1938	1,216	853	68	295	565,653
Total, 1937	1,456	1,133	48	275	656,731

South Texas: Laredo Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Duval	610	452	26	132	111,160
Jim Hogg	22	10	2	10	1,760
LaSalle	6	.....	....	6	.....
McMullen	118	49	6	63	7,223
Starr	54	15	8	31	4,954
Webb	169	92	9	68	12,365
Zapata	78	49	1	28	2,634
Total. 1938	1,057	667	52	338	140.096
Total, 1937	1,522	1,021	90	411	269,540

of crude oil and unsettled markets in 1938, although prices were well maintained, and drilling was curtailed about in line with the national decrease. The state had 1270 completions in 1938, or 14 percent less than the 1470 of 1937.

Because of reduced demand for lubricants, principal product made from Pennsylvania grade crude, prices for that oil were depressed and drilling was discouraged. Completions were down around 35 percent in Pennsylvania, Ohio, West Virginia, and New York.

Kansas and Oklahoma lost markets heavily to Illinois, as the new fields of that state began supplying refineries of the Middle West; and drilling consequently was materially retarded in the two former states.

Kansas completions in 1938, totaling 1642 wells, were 38 percent fewer than in 1937, when 2657 wells were finished.

The 2087 completions in Oklahoma in 1938 were 29 percent under the 2926 of the previous year.

Drilling was down 19 percent for Texas as a whole, as completions dropped off to 12,184 in 1938 from 14,997 in 1937. The largest decrease in the state was that of 52 percent in Eastern Texas outside the East Texas field. The second largest decline was that of 32 percent in the Panhandle. The East Texas field had 1806 completions, 27 percent less than the 2466 in 1937. South Texas drilling was off 24 percent, or from 3594 in 1937 to 2744 in 1938, as completions declined 30 percent in the Laredo district, 23 percent in the

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

South Texas: San Antonio Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Atascosa	9	.....	.....	9	.....
Bastrop	25	4	.....	21	129
Bexar	54	29	2	23	291
Blanco	1	.....	.....	1	.....
Burleson	2	1	.....	1	750
Caldwell	183	131	2	50	13,389
Edwards	3	.....	.....	3	.....
Frio	8	2	1	5	151
Gonsales	1	.....	.....	1	.....
Guadalupe	81	41	.....	40	4,807
Kendall	5	1	.....	4	12
Kerr	1	.....	.....	1	.....
Kimble	4	1	.....	3	20
Kinney	1	.....	.....	1	.....
Lee	1	.....	.....	1	.....
Maverick	5	.....	2	3	.....
Medina	36	10	.....	26	35
Milam	12	6	.....	6	55
Travis	11	.....	.....	11	.....
Uvalde	1	.....	.....	1	.....
Val Verde	6	3	.....	3	35
Williamson	12	1	.....	11	10
Wilson	6	.....	.....	6	.....
Zavalla	3	1	1	1	10
Total, 1938	471	231	8	232	19,694
Total, 1937	616	379	5	232	88,208

Texas Gulf Coast

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Amelia	10	9	.....	1	4,906
Anahuac	48	41	3	4	20,838
Bammel	1	1	.....	.....	130
Barbers Hill	14	12	.....	2	3,812
Batson	16	14	.....	2	2,873
Big Hill, Jefferson	1	.....	.....	1	.....
Blue Ridge	2	1	.....	1	260
Boling	12	8	.....	4	1,421
Brenham	9	1	.....	8	5
Byan Mound	3	.....	.....	3	.....
Call	2	.....	.....	2	.....
Cedar Bayou	4	2	.....	2	291
Cedar Point	8	7	.....	1	4,235
Cheek	3	3	.....	.....	861
Clam Lake	4	3	.....	1	1,154
Clay Creek	3	1	.....	2	34
Clear Lake	4	2	1	1	940
Cleveland	1	1	.....	.....	42
Clinton	13	8	1	4	2,065
Conroe	7	6	.....	1	3,085
Cotton Lake	4	3	.....	1	751
Damon Mound	3	.....	.....	3	.....
Danbury	13	8	.....	5	1,110
Dickinson	95	84	5	6	41,592
Esperson	6	5	.....	1	1,039
Eureka	23	22	.....	1	10,421
Fairbanks	130	117	3	10	55,537
Fannett	4	3	.....	1	493
Five Corners	10	8	2	.....	1,773
Fiendswood	103	94	.....	9	56,192
Garwood	1	.....	.....	1	.....
Goose Creek	5	5	.....	.....	416
Green's Lake	2	1	.....	1	29
Hankamer	8	5	.....	3	1,423
Hardin	103	97	.....	6	43,911
Hastings	166	159	.....	7	87,991
High Island	7	7	.....	.....	1,028
Hitchcock	17	10	.....	7	3,835

(Continued in next column)

Texas Gulf Coast—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Hockley	1	.....	.....	1	.....
Hull	18	18	.....	.....	3,992
Humble	24	19	.....	5	3,719
Katy	6	.....	6	.....	.....
Labelle	1	1	.....	.....	1,066
League City	2	1	.....	1	301
Livingston	1	1	.....	.....	144
Lochridge	18	16	.....	2	4,049
Magnet	10	9	.....	1	835
Manvel	19	16	.....	3	6,447
Markham	8	2	.....	6	394
McCrosky	6	4	.....	2	484
Moss Bluff	1	.....	.....	1	.....
Nome	8	5	1	2	2,336
North Creek	5	2	.....	3	227
North Dayton	1	1	.....	.....	5
North Markham	1	1	.....	.....	168
Old Ocean	14	14	.....	.....	4,346
Orange	29	22	.....	7	7,676
Orchard	7	2	.....	5	119
Palacios	5	2	.....	3	423
Pickett Ridge	13	8	.....	5	972
Pierce Junction	12	12	.....	.....	2,802
Pledger	1	.....	1	.....	.....
Port Neches	1	.....	.....	1	.....
Sandy Point	5	4	.....	1	712
Saratoga	2	1	.....	1	20
Stasuma	2	2	.....	.....	90
Seabreeze	9	8	2	1	1,947
Segno	19	17	.....	2	6,589
Silsbee	13	12	.....	1	6,614
South Ray City	12	12	.....	.....	2,665
South Cotton Lake	13	12	.....	1	3,204
South Houston	1	.....	.....	1	.....
South Liberty	4	3	.....	1	171
Spanish Camp	4	.....	2	2	.....
Spindletop	12	11	.....	1	2,660
Spurger	9	9	.....	.....	4,774
Stratton Ridge	1	.....	.....	1	.....
Sugarland	1	.....	.....	1	.....
Thompsons	28	23	2	3	3,675
Tomball	81	62	14	5	23,760
Turtle Bay	9	6	.....	3	2,300
Van Vleek	8	8	.....	.....	2,984
Waller	1	.....	.....	1	.....
West Beaumont	19	15	2	2	3,718
West Columbia	47	42	.....	5	19,839
Withers	36	36	.....	.....	6,766
Wilson Creek	2	2	.....	.....	235
Counties (Wildcats):					
Brazoria	13	.....	.....	13	.....
Brazos	1	.....	.....	1	.....
Chambers	4	.....	1	3	.....
Fort Bend	9	.....	.....	9	.....
Galveston	3	.....	.....	3	.....
Grimes	1	.....	.....	1	.....
Harris	19	.....	.....	19	.....
Jasper	1	.....	.....	1	.....
Jefferson	8	.....	.....	8	.....
Liberty	6	.....	.....	6	.....
Madison	3	.....	.....	3	.....
Matagorda	4	.....	.....	4	.....
Montgomery	8	.....	1	7	.....
Newton	1	.....	.....	1	.....
Orange	1	.....	.....	1	.....
Polk	3	.....	.....	3	.....
San Jacinto	1	.....	.....	1	.....
Trinity	7	.....	.....	7	.....
Tyler	2	.....	.....	2	.....
Walker	1	.....	.....	1	.....
Waller	2	.....	.....	2	.....
Washington	1	.....	.....	1	.....
Wharton	8	.....	.....	8	.....
Total, 1938	1,522	1,187	47	288	487,111
Total, 1937	1,537	1,174	59	304	516,055

Eastern Texas (Outside East Texas Field)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Anderson:					
Boggy Creek	1	.....	.....	1	.....
Cayuga	18	14	3	1	18,445
Long Lake	38	25	12	1	13,117
Wildcats	5	.....	1	4	.....
Angelina	13	.....	.....	13	.....
Bowie	3	.....	.....	3	.....
Camp	1	.....	.....	1	.....
Cass:					
Hughes Spring	1	.....	.....	1	.....
Rodessa	15	12	.....	3	3,403
Cherokee:					
Boggy Creek	1	.....	.....	1	.....
Lone Star	2	2	.....	.....	85
Wildcats	8	1	.....	7	267
Dallas	2	.....	.....	2	.....
Delta	1	.....	.....	1	.....
Ellis	1	.....	.....	1	.....
Falls	3	1	.....	2	30
Fannin	1	.....	.....	1	.....
Franklin:					
Talco	47	45	.....	2	11,412
Wildcats	2	.....	.....	2	.....
Freestone:					
Cayuga	18	17	1	.....	35,404
Wildcats	3	.....	.....	3	.....
Gregg	2	.....	2	.....	.....
Harrison:					
Waskom	1	.....	1	.....	.....
Wildcats	1	1	.....	.....	8
Henderson:					
Cayuga	11	11	.....	.....	18,083
Flag Lake	17	12	1	4	5,597
Wildcats	12	.....	.....	12	.....
Hill	2	.....	.....	2	.....
Hopkins:					
Sulphur Bluff	2	2	.....	.....	950
Houston:					
Navarro Crossing	6	3	2	1	259
Wildcats	7	.....	.....	7	.....
Grapeland	1	1	.....	.....	175
Kittrell	3	2	.....	1	165
Hunt	1	.....	.....	1	.....
Kaufman	3	.....	.....	3	.....
Lamar	2	.....	.....	2	.....
Leon:					
Buffalo	4	1	3	.....	171
Long Lake	1	.....	.....	1	.....
Wildcats	2	.....	.....	2	.....
Limestone	8	.....	.....	8	.....
Madison	3	.....	.....	3	.....
Marion:					
Jefferson	30	27	3	.....	10,719
Pine Island	2	1	.....	1	15
Rodessa	74	70	3	1	30,967
McLennan	4	.....	.....	4	.....
Navarro	17	2	.....	15	4
Panola:					
Bethany	1	.....	1	.....	.....
Others	3	.....	1	2	.....
Rains	1	.....	.....	1	.....
Red River	3	.....	.....	3	.....
Rockwell	1	.....	.....	1	.....
Sabine	2	.....	.....	2	.....
Shelby:					
Joaquin	1	1	.....	.....	135
Wildcat	1	.....	.....	1	.....
Smith	4	.....	1	3	.....
Titus: Talco	55	51	.....	4	13,221
Trinity	2	.....	.....	2	.....
Upshur	3	.....	.....	3	.....
Van Zandt:					
Van	8	4	.....	4	422
Wildcats	2	.....	.....	2	.....
Total, 1938	487	306	35	146	162,954
Total, 1937	1,007	860	37	110	531,759

San Antonio area, and 16 percent in the Corpus Christi section. West Texas had 2290 completions in 1938, or 21 percent less than in the previous year. West Central Texas showed a 9 percent decrease, as completions dropped from 403 to 366. The Texas Gulf Coast had 1522 completions in 1938, only 1 percent less than the 1537 of 1937.

New Mexico experienced a 21 percent decrease in drilling in 1938, as completions fell off to 534 from 674 the year before.

Montana had a decrease of 60 percent, having furnished 79 completions, compared with 200 in 1937. Colorado's 11 new wells of 1938 were 42 percent under the 19 of 1937.

Alabama in 1938 had only 1 completion, compared with 2 the year before.

Wells Drilled in the United States in 1938, by Counties and Fields—(Continued)

East Texas Field

Area	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Joiner	531	520	....	11	2,207,417
Kilgore	606	598	....	8	2,513,530
Longview	669	647	....	22	4,069,937
Total, 1938	1,806	1,765	....	41	8,790,884
Total, 1937	2,466	2,380	2	84	11,808,553

Texas Panhandle

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Carson	83	45	35	3	15,722
Collingsworth	1	.....	....	1	.....
Dallam	1	.....	....	1	.....
Gray	168	154	8	6	70,952
Hall	1	.....	....	1	.....
Hansford	1	.....	1	....	.....
Hartley	1	.....	1	....	.....
Hutchinson	252	237	7	8	131,759
Moore	30	1	29	....	656
Ochiltree	1	.....	....	1	.....
Potter	2	.....	2	....	.....
Roberts	1	.....	....	1	.....
Sherman	1	.....	1	....	.....
Wheeler	28	8	14	6	631
Total, 1938	571	445	98	28	219,720
Total, 1937	838	655	153	30	322,681

West Texas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Andrews:					
Emma	5	5	....	....	3,159
Fuhrman	19	17	....	2	22,293
Means	24	23	....	1	29,097
North Cowden	1	1	....	....	253
Wildcats	14	1	1	12	30
Bailey	1	.....	....	1	.....
Borden	1	.....	....	1	.....
Brewster	2	.....	....	2	.....
Cochran	8	7	....	1	1,773
Wildcats	3	.....	....	3	.....
Coke	1	.....	....	1	.....
Concho	1	.....	....	1	.....
Crane:					
Church and Fields	3	3	....	....	1,199
Gulf-McElroy	12	12	....	....	11,617
Jordan	21	21	....	....	35,985
Magnolia-University	6	5	....	1	402
McCamey	24	19	....	5	8,671
McKnight	2	1	....	1	159
Sand Hills	14	10	....	4	12,144
Waddell	9	8	....	1	32,297
Wildcats	2	.....	....	2	.....
Crockett	5	5	....	....	248
Hoover	7	2	....	5	107
Wildcats	8	3	....	5	196
World	4	3	....	1	1,510
Culberson	3	.....	....	3	.....
Dickens	3	.....	....	3	.....
Ector:					
Foster	120	120	....	....	112,315
Goldsmith	259	257	1	1	302,343
Harper	147	147	....	....	227,497
Jordan	38	38	....	....	35,984
Judkins	17	17	....	....	7,435
Moss	1	1	....	....	90
North Cowden	38	38	....	....	29,503
South Cowden	3	3	....	....	1,580
Wildcats	5	1	....	4	17
Fisher:					
Rotan	24	18	....	6	6,518
Royston	6	4	....	2	715
Wildcats	11	1	....	10	493
Floyd	1	.....	....	1	.....

(Continued in next column)

West Texas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Gaines:					
Seminole	5	5	....	....	1,899
Wasson	29	26	....	3	26,359
Wildcats	9	.....	....	9	.....
Garza	2	.....	....	2	.....
Hockley:					
Slaughter	3	2	....	1	835
Wildcats	11	10	....	1	5,548
Howard	147	132	....	15	102,218
Irion	2	.....	....	2	.....
Jeff Davis	1	.....	....	1	.....
Jones	198	123	....	75	107,662
Lamb	1	.....	....	1	.....
Loving:					
Kyle	1	.....	....	1	.....
Mason	7	5	....	2	792
Wheat	3	3	....	....	279
Wildcats	2	.....	....	2	.....
Lynn	1	.....	....	1	.....
Martin	2	.....	....	2	.....
Menard	4	.....	....	4	.....
McCulloch	2	.....	....	2	.....
Mitchell	4	3	....	1	222
Nolan	1	.....	....	1	.....
Pecos:					
Masterson	19	13	....	6	3,435
Netterville Pool	9	7	....	2	658
Payton	21	20	....	1	3,798
Pecos Valley	42	30	3	9	8,016
Shearer	1	1	....	....	196
Taylor Link	8	7	....	1	1,768
Torborg	6	6	....	....	447
White-Baker	3	2	1	....	57
Yates	9	8	....	1	5,399
Wildcats	27	.....	1	26	.....
Reagan	3	.....	....	3	.....
Reeves	6	.....	1	5	.....
Runnels	4	1	....	3	10
Schleicher:					
Cooper	1	.....	1	....	.....
Wildcats	1	.....	....	1	.....
Scurry	5	1	....	4	89
Sterling	5	.....	....	5	.....
Stonewall	5	1	....	4	330
Sutton	1	.....	....	1	.....
Taylor	14	3	....	11	361
Terrell	2	.....	....	2	.....
Terry	1	.....	....	1	.....
Tom Green	3	.....	....	3	.....
Upton:					
Gulf-McElroy	19	19	....	....	37,598
McCamey	160	143	....	17	74,965
Wildcats	3	.....	....	3	.....
Val Verde	3	.....	....	3	.....
Ward	212	187	2	23	127,092
Winkler:					
Bashara	1	1	....	....	99
Emperor	12	11	1	....	10,290
Gulf O'Brien	1	1	....	....	364
Halley	3	3	....	....	4,612
Henderson	13	13	....	....	32,450
Hendrick	7	7	....	....	3,507
Kermit (Sayre)	151	149	2	....	141,115
Keystone	29	26	2	1	7,757
Scarborough	10	10	....	....	2,908
Yoakum:					
Bennett	51	50	....	1	76,295
Wasson	101	101	....	....	49,385
Wildcats	10	.....	....	10	.....
Total, 1938	2,290	1,921	16	353	1,724,445
Total, 1937	2,898	2,525	10	363	3,088,697

Utah

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Daggett	1	.....	1	....	.....
Grand	2	.....	....	2	.....
Summit	1	.....	....	1	.....
Total, 1938	4	.....	1	3	.....
Total, 1937	1	.....	1	....	.....

West Central Texas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Brown	63	32	3	28	1,197
Callahan	42	2	4	36	1,529
Coleman	32	5	6	21	181
Comanche	12	7	....	5	585
Eastland	21	8	3	10	965
Erath	3	.....	....	3	.....
Hood	1	.....	....	1	.....
McCulloch	2	1	1	....	10
Mills	1	.....	....	1	.....
Palo Pinto	24	2	3	19	30
Parker	3	.....	....	3	.....
Shackelford	149	76	4	69	11,179
Stephens	12	5	4	3	298
Tarrant	1	.....	....	1	.....
Total, 1938	366	138	28	200	15,974
Total, 1937	403	166	25	212	12,586

Wyoming

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Albany:					
Wildcats	2	1	....	1	120
Quealy	2	1	....	1	480
Big Horn:					
Five Mile Dome	1	.....	....	1	.....
Carbon:					
Allen Lake	1	.....	....	1	.....
Bunker Hill	2	1	1	....	1,680
Big Medicine Bow	2	1	....	1	70
Rock River	2	2	....	....	858
Mahoney Dome	1	1	....	....	172
Oil Springs Structure	1	.....	1	....	.....
Quealy Dome	1	1	....	....	40
Others	2	.....	....	2	.....
Shirley Anticline	1	.....	....	1	.....
Converse:					
Carey Ranch	1	.....	....	1	.....
West Shawnee Creek	6	.....	4	2	.....
Crook:					
Wakeman	1	1	....	....	8
Fremont:					
Beaver Creek	1	.....	1	....	.....
Muskrat	1	.....	1	....	.....
Pilot Butte	1	.....	....	1	.....
Wildcats	3	1	....	2	15
Hot Springs:					
Hamilton Dome	1	1	....	....	400
Others	1	.....	....	1	.....
Kirby Creek	1	1	....	....	15
Red Springs	1	1	....	....	12
Warm Springs	1	1	....	....	50
Waugh Dome	1	.....	....	1	.....
Natrona:					
Salt Creek	5	5	....	....	690
Niobrara:					
Lance Creek	22	19	1	2	23,958
West Mule Creek	1	1	....	....	15
Park:					
Elk Basin	1	.....	1	....	.....
Frannie	1	1	....	....	450
Little Polecat	1	.....	1	....	.....
Sublette:					
LaBarge	1	1	....	....	15
Sweetwater:					
Cherokee Ridge	1	.....	1	....	.....
Lost Soldier	4	4	....	....	1,130
Middle Baxter	1	.....	1	....	.....
North Baxter Basin	2	.....	1	1	.....
Washakie:					
Hidden Dome	1	.....	....	1	.....
Sharard Dome	1	.....	....	1	.....
Wildcats	1	.....	....	1	.....
West Mule Creek	1	1	....	....	3
Weston:					
Osage	26	19	....	7	659
Total, 1938	108	65	14	29	30,840
Total, 1937	105	65	10	30	46,168

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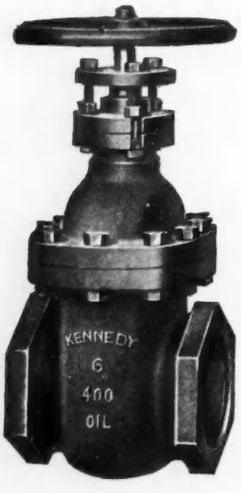

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VALVES-PIPE FITTINGS-FIRE HYDRANTS

Pumping

[Continued from page 68]

Pumping is the principal producing method in all settled fields, and most of the new producers go on the pump immediately.

An improved demand for Eastern crude oil will result in increased drilling operations in several districts. This in turn will affect pumping operations. Replacement expenditures for older pumping wells probably will show an increase, due to the widespread effort to obtain more light oil.

Such states as New Mexico and Michigan should account for as many initial pumping installations as last year, and replacement expenditures probably will run materially higher. The Rocky Mountain States show a higher indicated expenditure for both initial installations and replacements.

Over $45,000,000 for Pumps

The indicated total initial installation expenditure for the United States is $26,675,000, while the indicated replacement expenditure is $18,960,000. Both totals appear conservative. An estimate on the replacement expenditure is difficult to develop, since all types of pumping equipment must be considered. The estimated yearly equipment replacement cost ranges from $30 in the shallow Eastern wells to around $500 for the deepest pumping wells. The average replacement expenditure for the 300,000 pumping wells in the United States has been placed at $63, probably a very low figure. Improved conditions will bring increased replacement expenditures.

The cost of placing a well on the pump varies from $1000 in the representative shallow districts to $12,000 in the most expensive areas. The totals represent all surface equipment, rods, tubing and pump. A typical pumping installation for a 3500-foot well in Texas, Kansas or Oklahoma costs about $4000. In other districts the average may be higher or lower, the cost depending upon the type of equipment used.

Expenditures for pumping equipment, both for initial installations and replacements, will be accelerated by an improved demand for crude oil. The expected decline in flush production during 1939 should throw more attention to pumping production in all districts.

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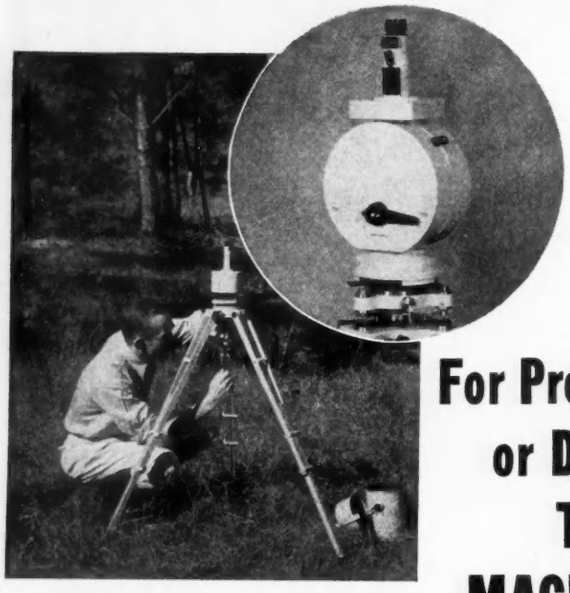

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Drilling

[Continued from page 72]

3800 feet, at an average cost of about $18,000. The 1200- to 1650-foot Van Buren and Allegan wells cost from $6000 to $9000, while the various 3500- to 4000-foot central Michigan field wells cost from $15,000 to $20,000.

Kansas remains one of the most active states, with drilling largely falling between 3000 and 4000 feet. A typical well in the deeper brackets costs around $34,000, but the shallower wells bring the average down to a lower figure. The state average of $26,000 is considered conservative.

Drilling costs in New Mexico average high, due to location and hard formations encountered. Lea County wells cost from $23,000 to $45,000, while Eddy County produces from grass roots to 4200 feet and wells cost from a few thousand dollars to $45,000.

Illinois should drill around 2650 wells during 1939 at an average cost of $16,000. The shallow sand wells cost about $10,000 to complete, while the deeper lime wells average around $23,000. The average drilling depth is about 1900 feet. Wildcat drilling in this state costs much more per foot than drilling in the proven areas.

The service life of drilling equipment directly affects expenditures in every district. The average useful life of most of the heavy equipment is about four years, and theoretically a full replacement is effected once during this period. The turnover of equipment receiving the greatest wear is heavier, and such items as chain, drilling lines, bits, drill pipe, and specialty items have no definite service life from a time standpoint.

The surplus of suitable drilling equipment is not heavy in districts that will drill about as many wells in 1939 as in 1938. On the whole, a greater surplus existed at the beginning of 1938, since purchases during 1938 were lower than was expected. Completion of the predicted number of wells during 1939 will require the purchase of more equipment than was sold during 1938.

Less wells will be drilled during 1939 than in 1938, but expenditures for drilling equipment should show an increase. This is the conclusion drawn from information supplied by oil companies all over the United States.

WORLD DEVELOPMENT and TECHNOLOGY

Canadian Fields

Edited by
WM. V. GROSS, Associate Editor

3500-barrel test triples length of Turner Valley. Oil encountered at 1925 feet on Saskatchewan border. Water intrusion delays completion of mile outpost.

Home Oil Company, Ltd.'s Millarville 2, Legal Subdivision 6, Section 33, Township 20, 3-w5, on the northwest flank of the Turner Valley structure and 15 miles from sizable production, started flowing at the rate of 3500 barrels a day through tubing following acidization of the lower Madison lime porous horizon. Earlier in the week, the well yielded 1710 barrels on a 12-hour test with crude coming between the tubing and the casing.

The test, which more than triples the length of Turner Valley field, gives promise of being Canada's largest producer. It has the highest bottom-hole pressure of any well recorded in Turner Valley, registering 3055 pounds per square inch after being closed in for 72 hours. Only two wells on the southwest flank, the principal crude area, had bottom-hole pressures above 2000 pounds when provincial government tests were made last fall—Royalite Oil Company, Ltd.'s 31 with 2100 pounds and Sundance Royalties, Ltd.'s 1 with 2060 pounds.

That the well will receive one of the highest potentials in the field was indicated by its extremely low gas/oil ratio, ranging during tests last week between 850 and 1200 cubic feet of gas per barrel of oil. Bottomed at 8495 feet, the outpost is 500 to 1000 feet deeper than the average crude well on the southwest flank.

Holders of acreage between the Home test and development to the south, a 15-mile stretch that has been all but forgotten during the past 18 to 24 months, were speeding plans for drilling this season.

Another Strike

Commanding attention with the Millarville well developments was a strike at Lloydminster Royalties, Ltd.'s No. 1, wildcat on the Alberta-Saskatchewan border. The well, in a gas field undergoing development for several years, had been rigged for a deep test to the Madison lime and realized an unexpected oil strike at 1925 feet. Crude rose 1000 feet in the hole, and bailing of 150 barrels into a pit dug on the location during a 24-hour period did not affect the level of the oil.

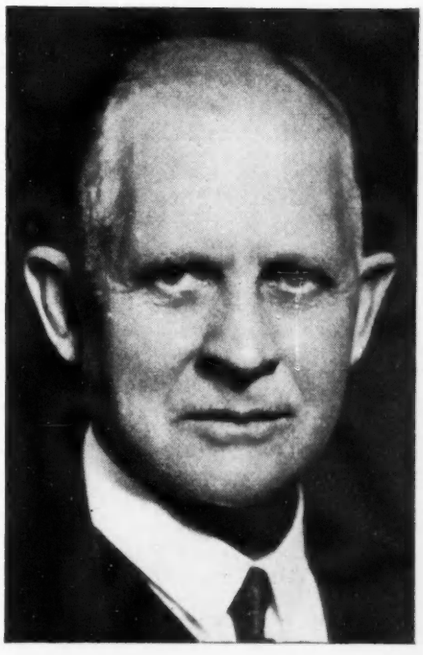
Ten-inch casing has been set to 1830 feet, leaving 95 feet of open hole in which some caving occurred when oil rose in the hole. The well has only fair gas pressure, but it is believed use of gas from nearby Colony Gas Company's wells will avoid the necessity of pumping. The wildcat is shut down while company officials confer with government officials and Calgary oil men on completion methods. Location is Legal Subdivision 4, Section 36, Township 49, 1-w4.

Completion procedure at Okalta Oils, Ltd.'s 6, Legal Subdivision 3, Section 30, Township 18, 2-w5, more than a mile west of production on the southwest flank of Turner Valley, had not been decided up to last week. The well was swabbing about 2/3 oil and 1/3 water from the upper Madison porous Madison lime section. With water-free crude coming up with the swab for extended periods, operators are not sure whether the water is still coming from the lower Madison, which may have been incompletely shut off, or whether it is still water that penetrated the upper Madison porous horizon during a month period the well was standing with water in the hole.

W. S. Herron, managing director of the Okalta company, declared that production could now be taken profitably, but that it was hoped to free the hole of water. Another 20 to 25 feet of cement may be added to the plug over the lower Madison to assure a complete shut off.

M-S-M Syndicate, with L. A. Snyder as managing director, has announced two wildcat tests for the Jenner structure, where the group holds 9000 acres in 14 sections in Township 22, 9-w4. The structure is on the Red Deer river, north of the Jenner station. T. Boyd Kyle has been given the contract for drilling the wells, the first of which will be started in February.

DR. FREDERICK G. CLAPP



Dr. Clapp, internationally known consulting geologist, who has returned from a lengthy sojourn in Afghanistan and Iran in behalf of Inland Exploration Company and Amiranian Oil Company, will have an article dealing with part of his findings in the International issue of The OIL WEEKLY, February 27.

Boatright tells commission Turner Valley must drill

A drilling program embracing from 10 to 15 new wells a year must be undertaken in Turner Valley if the Alberta oil field—largest in Canada—is to maintain its present production rate of approximately 6,000,000 barrels a year, a provincial royal commission investigating the industry was told last week.

Dr. B. B. Boatright, Houston oil engineer and member of the firm of Parker, Foran, Knode and Boatright, set the drilling figure as a "reasonable estimate" but not one that had been arrived at following an extensive study of the many factors entering into the picture. His estimate more than halved that of Stanley J. Davis, Calgary geologist and production engineer, who

previously testified that about 30 wells would have to be drilled each year.

Testimony before the commission last week continued on the pipe line phase of the inquiry, and it appeared that another week would be consumed before brief adjournment of the commission to study testimony submitted during the past two months. The commission will make a recommendation to the provincial utilities board on whether the present 15 cents a barrel rate charged by Royalite Oil Company, Limited, for transporting crude through its 35-mile pipe line system from Turner Valley to Calgary should be allowed to stand or shall be reduced.

Potential User Cited

Punctuating a series of hearings treating largely of financial statistics, Joseph S. Irwin, Calgary geologist, called the commission's attention to the Calling Valley structure, 16 miles long and two or three miles wide, to the east of Turner Valley. Commercial production in this area, Irwin indicated, would provide additional business for the Royalite company's pipe line system.

The only well thus far drilled on the structure—New Valley Oil Company, Limited's 1—has a column of oil of 34 degrees gravity standing between 1800 and 2000 feet in the 8430-foot hole, he said. The wildcat had previously shown a light oil in the Cardium sandstone at about 6400 feet, he added, but lack of gas pressure has thus far prevented commercial completion. Further drill-

Says Carrier Profits High

Kenneth Morrison, accountant retained by J. J. Frawley, K. C., commission counsel, told the commission that Royalite Oil Company realized a net profit, after providing for depreciation on a five year basis, of $385,843 on its pipe line system during the first nine months of 1938. During the period, the company received an average of 16.850 cents a barrel for transporting crude, 8.417 cents of which represented actual operating cost of the system, including income tax and depreciation, and 8.433 cents represented profit. Profits realized during the period amounted to a 57.32 percent return on the company's net investment of $897,448, Morrison said.

Called as a witness of the Royalite company and its parent company, Imperial Oil Company, Limited, E. G. Hill, consulting engineer of Lachmont, New York, and president of National Refining Company, set a figure of $1,700,000 as the present value of the company's pipe line system. Declaring he made an investigation of the company's system in May, 1938, and supplemented it with a further inspection two months ago, he termed the 15 cent rate equitable.

Terms Rates Equitable

The witness quoted rates charged by various pipe line companies in the United States and eastern Canada to show that the Royalite company's charges were not out of line. He arrived at an annual income, based on present market requirements, for the pipe line division of the company of $858,000. After deducting $311,500 for operating expenses, including $125,000 for new construction in pumps and additional secondary lines, $131,000 for amortization over a 10-year period and $63,869 in income taxes, he arrived at an estimated annual profit of $226,445. This profit, he said, would provide a 13.3 percent annual return on investment.

Declaring his figures were based on present market requirements, he predicted there would be little change in the prairie crude market of 17,000 barrels daily during the next few years. While new wells would be drilled, they would only necessitate additional spur line construction for the Royalite Company and would not increase its transportation revenue. A daily production for the field in line with market requirements in the face of additional wells would merely mean the company would be taking smaller quantities of oil from a larger number of wells.

The New York engineer declared a pipe line system comparable to that of the Royalite company would cost only 60 per cent as much in the United States. Blame was placed on higher material costs caused by "extremely high freight rates" and a "high Canadian tariff" on goods crossing the International boundary. Labor costs were described as about the same in the United States and Canada.

Doubts Market Expansion

Hill was distinctly pessimistic concerning prospects of Turner Valley operators extending their market beyond west Canadian prairie provinces.

"It is not now economically safe to transport oil to the coast or to Fort William, and there is no place in the states, where oil fields are also under proration, for it," he said. "The oil must be taken care of in the prairies."

Alberta operators, working with the provincial government, are negotiating with Canada's two railway systems for a preferential rate on crude shipped to Sarina, Ontario, where it would compete with United States crude, and to Vancouver, British Columbia, where it would compete with the California product and be available for export. Construction of pipe lines from Calgary to Fort William, Ontario, from which point crude could be moved to Sarina by tanker, and from Calgary to Vancouver, has also been proposed.

Completion of the pipe line phase of the inquiry this week will permit the commission to proceed with other duties, which, as set forth in an Alberta government order-in-council, include: A study of production, refining and marketing of petroleum products in Alberta; a determination of the fair and equitable crude price which would be charged in the province; a determination of the cost of importing crude and refined products into Alberta; a determination of the cost of refining and processing crude in the province; a study of the operations of the Ethyl Gasoline Corporation in Alberta; a study of the profits of persons, firms and corporations engaged in importation of crude oil and petroleum products into Alberta; a determination of the fair and equitable price which should be charged by wholesalers and retailers of refined products in Alberta, and the advantages or disadvantapes which might result from the government taking over the wholesale and retail distribution of petroleum products in the province.

Oil search in Britain is discouraging so far

Evidence that search for oil in Britain has not met with the success that various ventures hoped for is shown by the fact that the D'Arcy Exploration Company, a subsidiary of Anglo-Iranian Oil Company, relinquished 12 prospecting licenses last year, two of them in December. These two licenses covered areas in Sussex aggregating 371 square miles.

The results of extensive geological investigations, and of over 7000 feet of exploratory and deep test drilling have been negative.

The firm is pursuing exploration work in its remaining licensed areas and has drilled to date an aggregate of over 98,000 feet in exploratory, geophysical, and deep test drilling in England and Scotland. The deepest test was carried to over 6500 feet.

A new exploratory borehole will shortly be commenced at Bakring, in Nottinghamshire, and a third well is about to be begun near Dalkeith, in Scotland, where previous drilling has proved the presence of natural gas.

D'Arcy Exploration Company has, however, renewed two prospecting licenses for a further year: one of these covers sections of the counties of Dorset, Wiltshire and Southampton, aggregating 177 square miles. The other is about 71 square miles in extent and covers parts of Midlothian and East Lothian.

The British Minister for Mines announced recently the determination by the licensee of three prospecting licences granted under the Petroleum (Production) Act, 1934, and the Petroleum (Production) Regulations, 1935, to the Gulf Exploration Company (Great Britain), Limited.

The areas concerned consisted of two contiguous licensed areas which covered about 308 square miles in the counties of Somerset and Wiltshire, and included the towns of Devizes and Warminster; and one licensed area which covered about 130 square miles in the counties of York and Lancaster and included the town of Skipton.

Pemex claims organization functioning better now

Organization of operating the oil business in Mexico, which was conducted along lines followed by the expropriated companies until May, when new and what are claimed to be better methods were installed, is now highly satisfactory and is fast nearing perfection, announces Pemex. Personnel, from clerks to technicians, have snapped into the new system and are doing very well, the statement says. Operation is more uniform and centralized.

Sales of gasoline, lubricants and other oil products on the Mexican domestic market registered a remarkable increase during the March to September period of this year over those during the same period of 1937, when the expropriated companies were in charge of the market, reports Distribuidora de Petroleos Mexicanos, the official oil marketing company. Total sales in the 1938 period were 1,331,710 liters and 1,255,511 liters in that of 1937, it says.

MEN IN THE INDUSTRY'S NEWS

RONALD K. DeFORD, Argo Oil Corporation; George C. Gester, chief geologist, Standard Oil Company of California; Dr. Frank S. Hudson, chief geologist, Shell Oil Company; Robert I. Roth, Humble Oil & Refining Company; Clarence W. Sanders, Shell Petroleum Corporation, and Dr. James O. Sanderson, Home Oil Company (Calgary, Canada), recently were elected to fellowship in the Geological Society of America at its annual meeting in New York.

HOWARD (HOBBY) VAN ZANDT, assistant land man for Skelly Oil Company, Houston, is resigning February 1, to go into business for himself.

T. M. MARTIN, president, Lion Oil Refining Company, El Dorado, Arkansas, has been reappointed chairman of the asphalt committee of the Independent Petroleum Association of America. Other members are: J. R. MacKinnon, Talco Asphalt & Refining Company, Mt. Pleasant, Texas; W. H. Morgan, R. R. Bush Oil Company, Long Beach; J. B. Arthur, Union Oil Company, Los Angeles; R. S. McFarland, Seaboard Oil Company, Dallas; R. W. Leslie, Skelly Oil Company, El Dorado, Kansas; Paul G. Blazer, Ashland Refining Company, Ashland; J. L. Quinn, Standard Oil Company of California, New York; C. H. Dresser, Anderson-Prichard Oil Corporation, Oklahoma City; H. B. Pullar, Berry Asphalt Company, Chicago; W. D. Richardson, Cosden Oil Corporation, Fort Worth.

O. L. CORDELL has been elected president of Barnsdall Refining Corporation, succeeding E. B. Reeser, who remains as a director. Since segregation of the refining and sales properties from Barnsdall Oil Corporation, Reeser had been president of the two concerns. Cordell formerly was vice president in charge of sales with the Waite Phillips Company. After a period as an independent refiner, he joined the Phillips Petroleum Company. Recently he has been in the producing division of the oil industry as an independent operator.

ALBERT S. CLINKSCALES, consulting geologist, discussed the Anadarko basin, a major structural feature of southwestern Oklahoma, before the January 23 meeting of the Oklahoma City Geological Society.

CHARLES DOAK LOWRY, JR., assistant research director, Universal Oil Products Company, Chicago, was the speaker at the quarterly meeting of the Mid-Continent section, American Institute of Mining and Metallurgical Engineers, in Tulsa, January 22. His subject was "Nationalism in Substitute Motor Fuels." The subject was to have been discussed by Dr. Gustav Egloff, research director of the concern, who could not attend.

C. E. NEEDHAM, professor of geology and paleontology in the New Mexico School of Mines, has been appointed acting president to succeed E. H. Wells, who died on January 7.

GEORGE TRAVIS, Tulsa operator, has returned to Oklahoma following a tour of southern Illinois, Indiana, and western Kentucky oil areas. He plans to return to Evansville, Indiana, within the next few weeks.

GEORGE C. RANDOLPH and Charles Leeper, Owensboro, Kentucky, were in Evansville, Indiana, last week. Randolph is at present active in Butler County, Kentucky.

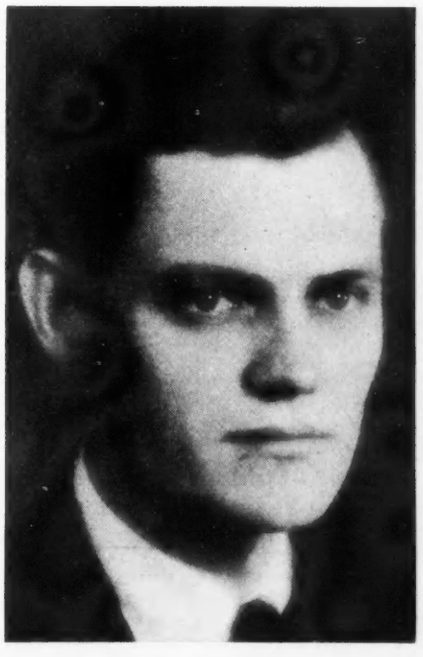
E. C. JOHNSTON left Evansville for Longview, Texas, last week, planning to return to Indiana within two weeks.

S. H. RUSSELL, drilling superintendent for the Turkish government, plans to return to that country in March to supervise drilling of some wells near the Tigris River, about 160 miles north of production in Iraq. For the last five years, Russell has been with the Turkish government. Prior to that, he spent 14 years in the oil business in Mexico and Texas.

JAMES P. HART has been named by Attorney General Gerald Mann as the assistant in charge of oil and gas litigation. Although Hart is only 35 years old, he has had varied experience as an attorney.

He is a graduate of the University of Texas and Harvard, has been district attorney and practiced law privately in Austin. In February, 1938, he was special district judge, which position he held during the time Ralph Yarborough was absent.

His reputation as an attorney in Austin is such that observers believe that under his administration the doubt which has attached to some of the oil and gas litigations in the past few years should be allayed.



JAMES P. HART

MARK C. MALAMPHY, consulting geophysicist, who has been retained by the Brazilian government for a number of years, has returned to the United States and is temporarily headquartered in Cumberland, Maryland.

GRANT CORBY, geologist for Far East Oil Development Company, recently left the West Coast by air clipper for the Philippines, where that organization is drilling a well on Bondoc Peninsula.

JOHN H. GLASS of Oil City, Pennsylvania, writes that the local crude price there is demoralizing to stripper well owners whose lifting cost is $2.45 per barrel and who get only $1.61 for their oil.

F. P. HYNES and F. J. Hynes, father and son of San Antonio, Texas, arrived in Evansville last week. They plan several wildcat tests in southern Indiana.

T. G. HOLLANDSWORTH, with the drilling contracting firm of Hollandsworth and Bander, Longview, Texas, was in Evansville, Indiana, last week.

FRANK SCHELL, superintendent of drilling operations for South Penn Oil Company in the Bradford field, has been named superintendent in charge of the company's New York and Pennsylvania operations. He succeeds Charles F. Stevenson, who was recently elected a vice president of the company. Other changes necessitated by Stevenson's advancement include the appointment of J. L. O'Neil, superintendent in the Oil City district for the past 7 years, to succeed Schell, and Clarence Graham, assistant superintendent of tools in the Bradford field, to take charge of O'Neil's former duties in the Oil City district.

HENRY MODE, Tulsa independent operator, was in Evansville last week. Mode has recently been active in Illinois.

D. W. FORT, R. B. Wabner and G. A. Korenlein last week organized the Midland Exploration Company as an Illinois operating firm. Headquarters have been established at 514 East Second Street, Centralia.

WINTHROP ROCKEFELLER received the Key Award from the Young Men's Board of Trade of New York. When making the presentation, Richard Kulze, president of the Board, described the untiring and effective way in which Rockefeller served as executive vice-chairman of the campaign committee for the Greater New York Fund in 1938:

"Mr. Rockefeller's ability to organize working groups, stimulate them, and follow through until the job was done marked him as one of New York's coming leaders. Appearing before more than 200 audiences, he carried the message for the need of the Fund to committee workers and employment groups of New York's businesses, both large and small, in a hard hitting, forceful way," said Mr. Kulze. "Young men of New York

are proud of the leadership given by Mr. Rockefeller and sincerely believe that his efforts in behalf of the Greater New York Fund entitle him to be selected as the young man who has rendered the most 'outstanding civic service' during 1938.

"I think I should add that for Mr. Rockefeller himself this occasion would seem to have a double importance. I am informed that he will enter upon a new job tomorrow in the Foreign Trade Department of Socony-Vacuum Oil Company, Inc., at 26 Broadway. I know that the good wishes of the Junior Board of Trade will accompany him in this work."

HARRY H. MACK, formerly general superintendent in charge of production for Sunray Oil Company, Tulsa, has been made vice president in charge of production, effective immediately. Mack first entered the employ of Sunray Oil Company 12 years ago, having previously been active in petroleum production in the Mid-Continent. He has been actively in charge of production for the firm during the past four years.

FRANK J. DEAN, veteran station department employe of the United Natural Gas Company near Kane, Pennsylvania, retired last week after 32 years of service with the company.

G. J. TURNER, formerly with Phillips Petroleum Company at Borger, Texas, has been transferred to Evansville, Indiana, as production manager for the company.

JOE P. CRAWFORD, James M. Rayhill and Raymond Morris have organized Producers & Refiners Corporation as an Oklahoma corporation. Headquarters have been established in the Petroleum Building at Oklahoma City.

R. A. BROWN, SR., and R. A. Brown, Jr., officers of Brown, Moyer & Brown, Ltd., and several other Alberta development companies, are expected to return to Calgary from London, England, about February 15.

A. P. SCHMITT, formerly of Rock Island, Illinois, is in charge of offices opened at Fairfield, Illinois, by Galerock Oil Company. The company has taken over considerable acreage and two wells in southern Leech Township, Wayne County, formerly held by H. E. Sloan and associates and plans additional development in the area.

JOHN G. NATION, field superintendent for Standard Oil Company of Venezuela at Caripita, stopped in Tulsa last week while on a tour of United States oil centers.

GEORGE E. WELKER was re-elected president of United Natural Gas Company at a directors meeting which followed a stockholders meeting held at the company's offices in Oil City, Pennsylvania, last week. Other officers named are William H. Locke, vice president; H. S. Rose, secretary and treasurer, and W. J. Judge, G. H. W. Sherman, P. L. Mulkin and J. G. Montgomery, Jr., directors.

GEORGE E. WELKER, J. G. Montgomery, Jr., and H. S. Rose were re-elected president, vice president and secretary-treasurer, respectively, of Sylvania Corporation last week. Directors named are G. H. W. Sherman, William H. Locke, A. C. Burwell and W. J. Judge.

DIED:

JOHN HANCOCK, 54, vice president and general counsel for Texas Pacific Coal & Oil Company, died January 22 of a heart attack at his Fort Worth residence. He was a native of Newton, Texas, and worked as a school teacher, court clerk and abstractor. Later he qualified as a lawyer at the University of Texas, and practiced law at Newton and Beaumont before entering the services of the above company in 1919 when its headquarters were at Thurber, Texas. He is survived by his wife, two daughters and 4 sisters.

WALTER SIDWELL, drilling contractor and oil producer, died January 19 at his home in Winfield, Kansas. He was born in West Virginia and followed oil development through Indiana and Illinois before coming to the Mid-Continent area. He had lived in Winfield since 1919. Sidwell was one of the discoverers of the Hugoton gas field, Finney County, Kansas. Among the survivors is J. S. Sidwell, assistant production superintendent of the Sinclair Prairie Oil Company, Tulsa.

ROBERT RANKLIN EWING, 91, veteran oil man who was said to have been a friend of Colonel Edwin Drake, died January 22 at Mercer, Pennsylvania. He was in the Titusville field during the boom era and later became a salesman of oil well supplies, maintaining his headquarters in Pittsburgh. He was crippled in a fall 25 years ago.

WALTER L. SIDWELL, 57, Kansas oil operator and one of the discoverers of the Hugoton gas field of southwestern Kansas, died January 19 at Winfield, Kansas, following a heart attack. Surviving are his widow and three sons.

C. B. SWICK died January 12 in Calgary following a brief illness. He was 35. Swick started as a tool dresser in Alberta in 1920, and four years later went to Peru where he was a driller for three years. He was in the service of Royalite Oil Company since his return from South America.

IRVIN E. BRADLEY, 63, oil operator of Wichita, Kansas, died January 17 in a Tulsa hospital following an operation. He had been in Wichita for 15 years. Surviving are his wife and two sons, O. E. Bradley, geologist, and E. L. Bradley, attorney, both of Wichita.

Independents to offer prizes to students

Through the Independent Petroleum Association of America $1000 will be awarded to the senior high school student, whose essay on "What Oil and Gas Have Done for My Community" gets highest ranking in final judging. In addition the association will award 18 prizes of $100 each to a winner from each of the states included in the contest: Arkansas, California, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Michigan, Montana, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, Texas, West Virginia and Wyoming.

The award of $1000 is to be used by the winner in payment for expenses to any college or university which the winner may elect to enter. While no restriction is placed on the use of the $100 awards, officials of the association are hopeful that these sums will be used for educational purposes after high school graduation.

Winner of the $1000 will be a guest of the association at its tenth annual meeting in Fort Worth in October. The winning essay will be read at this meeting.

Foster recommends cure for oil industry ills

R. L. Foster, a member of the "Special Committee of 36" of the Independent Petroleum Association of America and executive vice president of Landreth Production Corporation, Fort Worth, sounds a warning of insecurity and lack of improvement in the industry in a letter sent out to members of that committee, January 20.

The letter says in part:

"A rumbling threat of another cut in the price of crude oil is daily becoming more pronounced. Uncontrolled practices in Illinois, Louisiana and other places are undermining the price structure. What are we going to do about it?

"As a member of the Committee of Thirty-six appointed by the Independent Petroleum Association of America to study various phases of the industry and some troubles therein, I have heard many discussions with respect to the ills of the industry. It seems to be the consensus of opinion that, when storage is placed upon the proper basis—and it is near that point, if not there, and can now be reached in any event over a period of several months without any special hardship to anyone, and production and consumption thereafter kept in balance—the only ills then left to the industry will be such as are irritating but not of material consequence. These irritating ills will center about a small amount of bootlegging, illegal production and underselling. If the major units will keep clear of these irritating ills, the same will be so small that they can be ignored. However, as the industry exists today and to meet the ills complained of by the major units, I have heard only three remedies suggested, and they are:

"(1) To ignore the irritating ills and carry out, through a plan provided by the industry itself, the approximate program outlined before the Railroad Commission of Texas at its December hearing, and to which our committee turned with hopeful assurance.

"(2) That we have a divorcement of production, pipe line, refining and selling into separate units, with respect to which there is some difference of opinion within our committee, many of its strongest and best informed members insisting that divorcement be accomplished.

"(3) Federal aid to the states in allocating production."

THE WEEK'S NEWS SUMMARIZED

Legislation

Complete nationalization of the oil, natural gas, electrical and coal industries was proposed in a measure introduced to the United States Congress last week. No individual or private organizations would be permitted to engage in these businesses, and the properties of those now engaged would be taken over by purchase or condemnation, with payments to be in the form of bonds. A national natural resource corporation, with a capital of $100,000,000, all to be subscribed by the government, would be set up.

Early hearings on proposals that marketing be divorced from production is to be sought .

The Illinois - Indiana Petroleum Association went on record last week as favoring conservation of the state's oil resources. This action was considered important, since there has been considerable controversy over whether the growing production of the state should be controlled as it is in other large producing areas.

Texas legislators were slow in acting on Governor O'Daniel's proposal for a 1.6 percent transaction tax, but finally found a sponsor. However, most observers believed introduction of the bill was prompted so the governor could not complain because of lack of consideration given his measure.

Allowables

Production in February is likely to exceed the quantity produced in January; for Texas, Louisiana and Kansas are to have higher allowables.

No new proration order is to be issued by the Texas Railroad Commission, therefore new completions will swell the output of the state. It is estimated that the current allowable is approximately 1,338,330 barrels daily, when the Saturday and Sunday shutdowns are considered. The basic allowable, without the production holidays, has risen from 1,735,460 barrels on January 1 to 1,767,006 barrels on January 16, 1939.

The February allowable for Louisiana is 255,140 barrels, an increase of 3800 barrels, of which 2700 barrels was allotted to fields in the southern part of the state.

Kansas has fixed its February allowable at 153,900 barrels, which is in excess of the 148,000 barrel estimate of demand for the area.

Oklahoma plans to maintain the same allowable used in January, but adjust field quotas.

Prices

Few changes occurred in refinery markets, but these were all downward. Natural gasoline and fuel oil prices dropped slightly, while gasoline and kerosene quotations remained generally on the same level as the preceding week. There, however, was a weaker tone to the Oklahoma gasoline market, although actual reductions were confined to the lower grades.

The feature of markets during the week was the increase in Pennsylvania oils of 9 to 12 cents per barrel, which reflected improved demand for oil of this type and to some extent quieted uneasiness in the Mid-Continent area. However, the latter district was still unsteady due to continued expansion of Illinois' output.

Stocks

An undesirable sharp acceleration of crude runs to stills carried refinery operations to the highest level since January, 1938, and resulted in the addition of 1,703,000 barrels to gasoline storage. Crude runs increased 50,000 barrels daily during the week to an average of 3,310,000 barrels, in contrast with the desired 3,000,000-barrel level hoped for during the first three months of the year.

Crude stocks continued their downward trend, and gas and fuel oil storage was drawn on to the extent of 631,000 barrels.

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Allowable Picture

Texas, Louisiana and Kansas February allowables to be larger . . . Oklahoma and Arkansas adopt same output quota, and California may decrease

To recommend changes in Oklahoma's proration

A recommendation to rearrange proration schedules for Oklahoma fields will be introduced before the Oklahoma Corporation Commission January 27, with the allocations to be effective for February. Total allowable for the state will remain at 428,000 barrels daily, against demand of 482,500 barrels as estimated by the United States Bureau of Mines.

Under the schedules prepared by W. J. Armstrong, chief conservation officer of the commission, the allowable of the Wilcox sand wells of the Oklahoma City field would be increased from 76,100 barrels daily to 81,000 barrels; Class B fields, which include Greater Seminole, would be increased from 100,484 barrels to 110,476 barrels. Total increase from the two sources will be 15,376 barrels.

Decreases to be recommended are: Class C fields, which include Fitts, 5244 barrels; Class D fields, 177 barrels; unclassified but prorated fields, 5249; unprorated fields, 4706. Total of these matches the 15,376 barrels recommended as the increase for Oklahoma City and Greater Seminole.

Chief source for the increase in Class B fields would come from the St. Louis area with 8347 barrels. This area has had consistent extensions for the past six months.

The Fitts field will be reduced by 4997 barrels daily if the new schedule is approved. The four producing sands of this field failed by 3763 barrels to match their allowable of 38,997 barrels for December.

Reduction from fields which have proration by agreement will include 2386 barrels daily from the lower Simpson zone at Oklahoma City and 3199 barrels from wells producing from the dolomite.

Plan one-day shut in of Santa Fe Springs

A one-day shut down of the Santa Fe Springs field by areas similar to the plan worked out for Signal Hill is being considered by a committee that was selected last week following a mass meeting of operators. The entire field will not be shut down, due to the fact that it is necessary to produce a certain amount of gas every day for cities in the Los Angeles Basin.

In four days of partial shut down by areas at Signal Hill, production was cut 21,000 barrels from 552 wells, while 327 wells, remaining open, produced 6650 barrels, this curtailment being against a daily output of 48,228 barrels as of last Sunday.

At a meeting of Ventura Avenue operators last week, nearly all present agreed that no radical changes in the present system of curtailment as handled by the Central Committee of California Oil Producers was needed and expressed the opinion that if the present plans are followed very few changes would be necessary.

Kansas allowable set at 153,900 barrels daily

Daily output for Kansas oil fields in February was set at 153,900 barrels daily by the State Corporation Commission January 25. The figure is in excess of the 148,600 barrels estimated as demand for Kansas oil by the United States Bureau of Mines. Nominations by purchasers totaled 153,501 barrels.

Arkansas fields get same allowable for February

The February daily oil allowable for the Jones sand (lower Marine) in the Schuler field, Union County, Arkansas, was set at 15,000 barrels last week by the Arkansas Board of Conservation, the same figure as for January. Half of the allowable was allocated to bottom-hole pressure and half to acreage, the area allotted to Jones sand oil wells being 2,449.87 acres. The acreage factor used is 1 acre equals 3.061387 barrels. The sum of the bottom-hole pressures is 328,943 pounds, and the bottom-hole-pressure factor is .0228003 barrels. There are 120 wells in the Jones sand.

The February allowable for the Reynolds (Permian) lime at Schuler is 3000 barrels for the 13 wells producing from that horizon, allowable being based half on acreage and half on bottom-hole pressure. Total bottom-hole pressure is 44,536 pounds and area allotted to wells in this horizon is 520 acres. The bottom-hole pressure factor is .03368061 barrels per pound and the acreage factor is 2.884615 barrels per acre.

The February allowable for the lower Gloyd horizon of the south Miller County (Rodessa) field comprising 37 wells, is 4200 barrels, allocated half to acreage and half to bottom-hole pressure, area allotted to wells from this horizon being 325 acres and total bottom-hole pressure being 19,123 pounds.

The February allowable for the Magnolia field with 8 wells, was placed at 3000 barrels, half allotted to acreage and half to bottom-hole pressure. Area is 320 acres and total bottom-hole pressure is 27,140 pounds. The bottom-hole pressure factor is .05526897 barrels per pound acreage factor and 4.6875 barrels per acre.

The February allowable for Village and Buckner, both Permian lime fields, was left unchanged at 200 barrels per well.

Louisiana allowable boosted 3800 barrels in February

The February allowable for Louisiana was announced last week by Conservation Commissioner William G. Rankin at 255,140 barrels, an increase of 3800 barrels over January. February allowable for South Louisiana is 190,590 barrels and for North Louisiana, 64,550 barrels, divided as follows: Cotton Valley (Bodcaw), 1800 barrels; Cotton Valley (Holloway), 5000 barrels; Lisbon, 7750 barrels; Rodessa, 29,000 barrels; Shreveport (ten wells), 3000 barrels; and remaining North Louisiana fields, 18,000 barrels.

The increase in North Louisiana was 1100 barrels and in South Louisiana, 2700 barrels.

Texas allowable up due to new completions

Figures released by the Texas Railroad Commission last week show that the current allowable is approximately 1,338,330 barrels daily. This is the estimated average for the month of January, based on total allowable as of January 16, which was 1,767,006 barrels daily.

During the month there will be eight shutdown days, but under current orders, production of 105,887 barrels on shutdown days is permitted from wells producing water, those in Rodessa, and those in fields where a complete shutdown would result in a waste. For 23 days the allowable production would average 1,767,006 barrels. Combining these factors, the commission estimates that 41,488,234 barrels will be produced during the month.

In the comparative table below the January 16 District totals are shown, together with increases that have taken place since December 1:

	DISTRICT	Basic Allowable, December 1, 1938	Basic Allowable, December 12, 1938	Basic Allowable, January 1, 1939	Basic Allowable, January 16, 1939
1	Southwest Texas	39,099	39,642	39,647	40,857
2	Southwest Texas	69,984	70,922	70,972	73,029
3	Gulf Coast	269,401	271,735	271,735	279,226
4	Southwest Texas	204,686	204,727	207,028	214,108
5	East Central Texas	29,021	30,116	30,116	30,227
6	East Texas	79,946	80,387	88,345	89,808
6	East Texas Field	519,718	521,085	522,453	522,327
7-B	West Central Texas	52,574	52,975	52,832	54,001
7-C	West Central Texas	29,374	29,517	29,517	29,907
8	West Texas	240,964	243,625	243,528	251,606
9	North Texas	90,608	94,184	94,184	96,061
10	Panhandle	84,807	85,103	85,103	85,849
		1,710,082	1,724,019	1,735,460	1,767,006

Oil at the Capitols

Measure introduced calling for nationalization of United States oil and gas industry, would prohibit any private organizations engaging in the business

Bill would nationalize all power sources

Nationalization of the oil, natural gas, electrical energy and coal industries was proposed to congress last week in a bill introduced by Representative Coffee (Dem., Wash.), sponsor also of legislation to repeal the Connally "hot" oil act.

The bill, on which Coffee noted it was introduced "by request", would set up a national natural resources corporation, with a capital of one hundred million dollars, all to be subscribed by the government, to acquire and operate all oil, natural gas, power and coal producing facilities in the country. No individual or private organization would be permitted to engage in those industries.

The propertiees of all now engaged in the four industries would be taken over by purchase or condemnation, compensation being based on a "fair value" of their securities figured on actual earnings over the last 10 years and possible future earnings, but with no consideration of the value of the physical plants and resources. Payment of the compensation would be in the form of bonds to be issued by the corporation, to pay not more than three percent, the income of which would be subject to federal and state income taxes.

After acquiring all oil wells, coal mines, water-power plants, natural-gas fields, refineries and other plants involved in the four industries, the corporation would operate them as a going business.

Seek early hearings on national divorce bills

Early hearings on proposals for the divorce of marketing from production will be sought in both House and Senate, it was disclosed at Washington last week by Senator Guy M. Gillette (Dem., Iowa).

Pointing out that Congress in the past has several times enacted legislation requiring disintegration. The Senator declared that such measures have been adopted where they were necessary to prevent the growth of monopoly as well as to prevent unfair methods of competition.

Outstanding measures of this type, he said, are the laws prohibiting the coal-carrying railroads from operating mines, prohibiting railroads from having an interest in any water carrier operating in competition, disintegrating the public utility holding companies, separating the business of banking and investment, and prohibiting aviation companies from engaging in other branches of that industry.

"The legislation which I propose is not regulatory," Senator Gillette declared in a recent article in the official publication of the National Oil Marketers Association, which is pressing the fight for divorce legislation. "It is positive as to what must be done by integrated oil companies. Enforcement is placed in the hands of the Attorney General the same as that of any other statute of similar type. No bureau is set up to meddle with its operation or emasculate it with interpretations. The law can be interpreted only by the courts."

Texas legislature slow acting on O'Daniel tax proposal

Last week the Texas Legislature concluded its organization work, but then refused to settle down to business. Until Wednesday, January 24, no one would introduce Governor O'Daniel's tax bill. In order to have the bill before the House, Representative Alfred Petsch signed it and introduced it as House Bill 277.

Petsch is a veteran member and insisted that his purpose was to give the bill a chance; however, he said that he expected to support the sales tax of 2½ percent which he had introduced previously.

Most observers believe Petsch introduced the bill not only as a courtesy to the governor, but as a means of keeping the governor from complaining that the legislature had declined to consider his plan. As the days passed and no one offered to sponsor the bill, the legislature, and not the governor, was getting into a bad position, most observers believed.

Certainly, if Governor O'Daniel could have taken to radio and pointed out that his plan had not even been courteously received, he would have been supplied with a strong argument to present to those voters who gave him such enthusiastic support. Never before in the memory of any capital observer has a governor offered a plan and failed to find a sponsor within 24 hours.

New laws may be offered for regulation of industry

Bernard B. McGinnis, Pennsylvania state senator and a member of a legislative commission named to investigate Pennsylvania's oil industry, said last week that regulation of the industry by the present legislature is unlikely, but added that an exceptionally strong recommendation for new laws from a research expert employed by the commission may change the present outlook.

McGinnis referred to Samuel Ross, instructor of economics at Carnegie Institute of Technology, who is engaged in preparing a report for the commission. The commission will meet upon completion of the report, probably this week, and decide whether it shall be submitted to the legislature without revision. Findings of a statistical project set up under the Works Progress Administration will accompany the report.

First established in 1937, the commission was authorized to investigate all phases of the state's oil industry and to make recommandations regarding regulation of the industry as a public utility. The state supreme court found the original commission, the membership of which included an oil producer, an oil distributor and a representative of the public, to have been illegally created. After some delay, the legislature re-created the investigating body, changing the membership to include three members of the lower house of the legislature and two of the senate.

The Central Pennsylvania Oil Producers' Association has drafted a conservation bill designed to "protect the crude oil resources of this commonwealth from waste and destruction." It had not been formally introduced up to last week.

Moves to end democratic domination of commission

The first move toward ending democratic domination of the Pennsylvania five-man public utility commission was taken last week by Governor Arthur H. James when he ordered John Sullivan to "cease and desist" from his commission activities. Sullivan, a recent appointee of former governor Geo. H. Earle, had not been confirmed by the state senate. The action "revoked and rescinded" Sullivan's commission and terminated this "authority to hold office thereunder."

Appointment of a successor to Sullivan will give republicans their first seat on the commission. Expiration of the term of Commissioner Donald Livingston in April would provide the second seat.

Legislation is expected to increase the membership of the commission to seven members, thereby paving the way to a four-to-three republican majority on the regulatory body. A change in the membership of the commission would be welcomed by natural gas men, as the present commission has on several occasions refused permission to extend natural gas lines on the protest of coal interests that such action would harm their markets.

Other members of the commission, who would comprise the democratic minority if the plan for increasing the side of the agency is culminated, are Dennis J. Driscoll, chairman; Thomas Buchanan, Beaver County, and Richard J. Beamish, Harrisburg.

Tuttle named chairman of conservation committee

Oral P. Tuttle, Harrisburg, was named chairman of a newly-created committee on conservation of natural resources of the Illinois house of representatives last week. The body will handle all legislation before the lower house relative to the oil and natural gas industry during the current session.

Other members of the committee are: R. J. Branson, Centralia; Reed F. Cutler, Lewistown; Hugh Green, Jacksonville; Harold D. Kelsey, Barrington; I. S. Palmer, West Frankfort; Everett R. Peters, St. Joseph; Fred A. Reavill, Flat Rock; Michael A. Ruddy, Chicago; John

R. Thompson, Bridgeport; Harry L. Topping Kankakee, all Republicans, and George J. Bauer, Effingham; George A. Fitzgerald, Chicago; Tom M. Garman, Urbana; Sidney Parker, Texico; Frank Ryan, Chicago; Dr. Frank A. Stewart, Girard, and William Vicars, Pontiac, Democrats.

Members of the corresponding senate group—headed by William J. Connors, Chicago, with H. S. Burgess, Fairfield, as vice chairman—were named a week ago.

Approve Illinois-Indiana oil conservation bill

Approval of 16 of the Illinois-Indiana Petroleum Association's 19 directors was given last week to the Summers Conservation bill at a meeting held in Mattoon, Illinois. Prompt introduction of the measure, which embodies spacing of wells, plugging practices and production quotas, will be made in the legislature, and association officers will conduct an active campaign for its approval, said Lee Mulvihill, association executive secretary.

Meanwhile, three of an expected score or more measures affecting the oil industry made their appearance last week. They would require operators of pipe lines to furnish bonds to secure payment of proceeds of oil and gas to persons entitled to them, would void all oil leases in the event operations are not commenced within 90 days after the leases are made, and would impose a tax of 5 cents per 1000 cubic feet of all natural gas sold within the state.

A study of present Illinois statutes is being made by Attorney General John Cassidy to determine whether oil leases should be taxed as personal property or real estate. The question was raised by William F. Sonneman, Fayette County state's attorney, and the attorney general's opinion on the matter is considered highly important and may precede legislative proposals on the subject.

Even though an outright proration measure may not be adopted by the current legislative session, in the face of strong opposition being registered by independent operators, royalty owners and lease holders, some legislation replacing the present loosely drawn statutes on oil drilling is certain.

Among subjects that may be handled by separate bills, rather than a broad conservation measure, are: a requirement for filing applications to drill, uniform well spacing patterned after regulations in southwestern states, gas/oil ratio regulation, ratable production, required shut-offs to protect various strata from seepage from other strata, and a compulsory registering of leases and royalty holdings.

Pennsylvania considers three-cent fuel oil tax

First bill introduced in the Pennsylvania legislature affecting the oil industry came last week in the form of a proposed 3 cents a gallon tax on fuel oil. Distributors, who would be licensed and required to post $1,500 bonds, would be charged with collection of the tax.

The bill is similar to proposals defeated in two previous sessions and is not an administration measure.

Oklahoma to remain member of Interstate Compact

Continuation of Oklahoma as a member of the Interstate Oil Compact Commission for two years from September 1, will be assured with the signature of its governor, who favors the compact. The state house of representatives passed the bill calling for membership January 26. It previously had passed the senate.

The bill to provide for financing both state conservation and expense of membership in the compact is due for early consideration.

Oklahoma governor may participate in dispute

Entry of Governor Leon C. Phillips of Oklahoma into the controversy between the Mid-Continent Petroleum Corporation and its striking employees was indicated last week. The governor said he would visit Tulsa and confer with officials of the concern and with labor leaders.

Union leaders last week began preparation of additional charges, which are to be filed with the National Labor Relations Board. Already pending is a charge of failure to bargain with employees. The new charges will include that of discharging employees because of union activity.

J. C. Denton, vice president of the concern, indicated last week that directors of the corporation would be asked to pass on further operation of the West Tulsa refining plant. He said the necessity of additional cost of operation because of the employment of guards raised a question for directors to decide. He said the strike had halted rehabilitation and expansion work calculated to cost $750,000.

Kennedy charges Mexico subservient to Germany

Charging that Mexico has become subservient to and is carrying out the orders of Nazi Germany, Representative Martin J. Kennedy (Dem. N.Y.) has introduced a resolution in the house calling for an investigation of the status of American rights in Mexico, news from Washington states.

While the resolution is directed at a study of the situation to determine whether there has been a contravention of the Monroe Doctrine, it is seen in informed circles as providing a means for a congressional investigation of Mexico's expropriation of American oil properties last year.

The inquiry would be conducted by a seven-man house committee, financed by an appropriation of $30,000 provided for in the resolution.

Representative Kennedy, in his measure, charged that Mexico is willingly subservient to the Nazi regime in Germany, in violation of the Monroe Doctrine, and declared that "the policy being pursued by our government in connection with what is transpiring in Mexico has brought the United States into contempt in our neighboring republic and throughout the whole of Latin America."

This policy, he asserted, "has given each of the Latin American republics carte blanche to wipe out our vast economic interests in that region whenever they felt so inclined."

Committee to protect Kansas stripper wells

One objective of an oil advisory committee named last week by Payne H. Ratner, Kansas governor, will be to assist in preventing what he termed, "destruction of the stripper area of east and south Kansas." Its members are Ralph Pryor, Wichita, chairman; D. R. Lauck, R. W. Pyle and J. A. Aylward, all of Wichita and all independent oil producers. Another independent producer is Ward McGinnis, Eureka. Three members come from the ranks of integrated concerns: C. D. Kerr, Stanolind Oil & Gas Company; Max Mahaffey, Cities Service Oil Company, and Fred Mallonee, White Eagle division of Socony Vacuum Oil Corporation.

Principal activity of the committee will be to work with the state Corporation Commission. Part of the statement made by the governor was:

"The oil industry is second only to agriculture in Kansas. But profits of the oil industry have declined and its development has slowed down. The stripper area of east and south Kansas faces possible destruction and the total loss of this valuable natural resource. Certainly the state should make every effort to prevent such destruction."

Texas shut-down suit trial set February 6

The suit brought by Rowan and Nichols Oil Company against the Texas Railroad Commission attacking the validity of the East Texas shut-down order is set for February 6, in the federal district court at Austin. A pretrial of the case was held recently to clarify the points in the case.

California stripper well owners form association

Representative independent operators of California are organizing the California Stripper Well Association and have authorized Richard Fenton to carry the plan into effect. Incorporation papers have been prepared and approved by the executive committee selected by the operators and offices opened at 1017 Subway Terminal Building in Los Angeles. A meeting for the election of officers and directors will be held early this week.

Announced purposes of the association are:

"It shall be the purpose of the California Stripper Well Association to serve the operators of those oil wells generally classified as 'stripper wells' in the following ways:

"By providing a medium through which stripper well operators may present to the public, the government, and the rest of the oil industry facts concerning stripper wells and their relationship to all social, political, and economic movements affecting the petroleum industry.

"By providing a means of gathering and disseminating statistics on the operation of stripper wells as well as statistics on the general condition of the California oil industry in order that the decisions to be made by the stripper well operators concerning matters in which their cooperation is asked may be based thereon.

"By aiding in the presentation to all

legislative bodies of the relationship of the stripper wells to all pending or proposed legislation affecting the operation of stripper wells. And to assist in the drafting and passage or defeat of all legislation which may effect the operation of stripper wells."

Pending formal election of officers and directors this week, the association went on record with a request to the recently appointed Fact Finding Committee, which is endeavoring to collect facts on curtailment, to delay presentation of its recommendations to the Emergency Executive Committee until the stripper well operators have had an opportunity to present their case.

Speed up exchange of leases on public lands

Plans for speeding up work of exchanging prospecting permits for five-year leases on approximately 5,000,000 acres of public lands covered by some 3000 applications so far filed have been devised by the General Land Office, it was announced last week by Secretary of the Interior Harold L. Ickes.

One of the biggest jobs undertaken by the Land Office in recent years, the Oil Conservation Act of 1935 required that all outstanding permits be exchanged for leases by the end of last year.

Increased forces have been provided in 16 district land offices in the West, it was said, and a procedure has been worked out for the handling of all preliminary work in the field. Under these plans, it was promised, the exchanges will be made with a minimum of time and hardship to the applicants.

Contract awarded for new oil tanker

Commercial Iron Works, Portland, Oregon, has submitted a low bid of $155,000 for construction of a 140-foot all-steel bulk oil tanker for the Seattle-Alaska service of Petroleum Navigation Company. The firm offered to construct the tanker in 225 days.

Next lowest bid was that of Todd Seattle Drydocks for $157,000, while three Seattle, one Los Angeles and one San Francisco firm submitted higher bids.

The new tanker will be equipped with Diesel engines of 500-horsepower and will have a speed of approximately nine knots. It will be of fireproof construction and have 500 ton oil capacity. A low bid of $25,389 has been submitted for the engine by the Washington Iron Works, Seattle.

Another step taken in Hamilton reorganization

An important step in reorganization of Hamilton Gas Company, which at one time was one of the largest development firms in West Virginia, took place last week with sale of properties of Larner Gas Company, Charleston, to its parent Hamilton company.

The sale price of $283,001 involved leases, wells and land in Cabell, Lincoln and Putnam counties. A single lease, that of Shonk Land Company of Charleston, was bought by Donald C. Shonk, secretary of the land company.

Market Situation

Increase of Pennsylvania Grade prices 9 to 12 cents per barrel was high spot of the week . . . Only other price changes were refined—down . . .

Increase in Eastern crude prices feature markets

The increase in Eastern crude oil prices was the high spot of last week's puzzling market picture. The hike of 9 to 12 cents per barrel for the principal Pennsylvania grades reflected an improved demand for oil of this type. The spread of higher prices was hardly expected in Mid-Continent fields, but the boost had a strong quieting effect throughout the country.

Crude oil markets have been unsteady in several districts for several weeks, but a ray of hope has been observed in the Eastern fields, where the demand for light oil has been promising. The demand for industrial lubricants has been a steadying influence on the Eastern oil market for several months, and the higher posted prices of last week were the culmination of that improvement. The increase proved that higher prices are in store for any district that can bring its production in line with consumption.

Mid-Continent and California producers have been nervous for several months, the increased oil production in Illinois and a weaker refined market having combined to give increased worry. The higher posted prices in Eastern fields have proved a tremendous steadying influence.

California production has been curtailed enough to tide the state over the present rough spot that developed with heavy overproduction of last year.

Illinois crude oil production continues to climb, and the influence of this state's output is sharply felt by Mid-Continent fields.

The products market was slightly lower during the week, fuel oils having shown small declines in the principal consuming areas.

The increase in refinery runs has had an unsettling effect on gasoline prices, while the jump in gasoline stocks was considerable. The need for a reduction in refinery runs is apparent, the total being about 300,000 barrels daily above those recommended by the industry for the current period.

Pennsylvania grade crude hikes from 9 to 12 cents

Reflecting an improvement in the statistical condition of Pennsylvania grade crude, buyers advanced prices from 9 to 12 cents a barrel, effective January 21. The action reverses a price trend that was marked by six reductions since the fall of 1937, and closely follows lifting of proration by purchasing companies early this month.

Bradford and Allegany crude was advanced 12 cents a barrel to $1.80, in the Oil City-Titusville district 12 cents to $1.73; in South West Pennsylvania Pipe Lines 9 cents to $1.43; in Eureka Pipe Lines up 9 cents to $1.37, and in Buckeye Pipe Lines up 12 cents to $1.30. The price of Corning crude was advanced 5 cents to $1.02 on January 24.

Demand for crude in Pennsylvania has been picking up recently, and the inventory situation has similarly improved. The burdensome weight of bright stock and neutral oils has been lifted somewhat. Unless production is not held to refinery demand, it is believed that a further improvement in the Pennsylvania grade price structure will follow during the year in the face of an estimated 10 percent increase for domestic lubricant consumption.

In the 17-month period between September 1, 1937, and January 20, prices had declined between $1.04 and $1.21, or from an eight-year high to a five-year low. The improved price situation and removal of curtailment should materially increase drilling activity in the Pennsylvania grade region. Operations had been conducted at a greatly reduced rate during recent months.

Few changes in refined markets are downward

Few significant price changes were noted during the past week in refinery products, but all revisions in prices were on the downward side. Natural gasoline and fuel oil prices dropped slightly, while gasoline and kerosene quotations remained generally on the same level as during the previous week.

A slightly weaker tendency was observed in the Oklahoma gasoline market, but actual reductions were confined to the lower grades of gasoline.

The Chicago gasoline market failed to break through the previous week's minimum quotations, but sales averaged lower.

The Oklahoma kerosene market showed no change, but a slight weakening tendency was noted in Chicago quotations.

The downward tendency continued in the Chicago fuel oil market and reductions of ⅛ cent were posted for range oil and for the No. 1, No. 2 and No. 3 grades. No. 5 eased to a low of 57½ cents per barrel, while the No. 6 grade remained at 30 to 45 cents per barrel.

Mild weather during the first part of the winter unfavorably affected consumption of fuel oil in the Northern market.

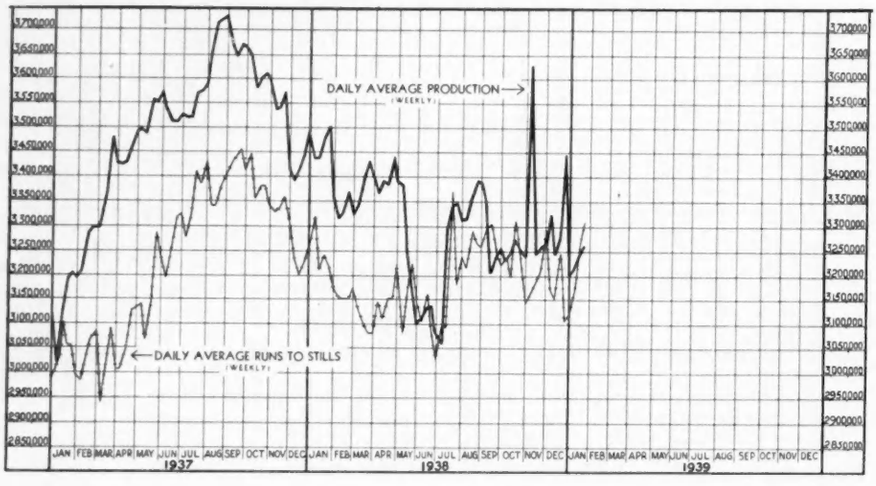
Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 2¾ to 3¼ cents a gallon, and sales were reported at 2¾ cents f.o.b. Breckenridge, Texas.

Gasoline Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 3⅝ to 4¼ cents a gallon; 63 to 66 octane, 3⅞ to 4½ cents;

United States Crude Oil Production and Refinery Runs


DAILY AVERAGE PRODUCTION
(WEEKLY)
DAILY AVERAGE RUNS TO STILLS
(WEEKLY)
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1937
1938
1939

67 to 69 octane, 4⅛ to 4⅝ cents; 70 to 72 octane, 4⅛ to 5 cents.

Corresponding prices in the Chicago market were 3¼ to 4 cents, 3⅝ to 4½ cents, 3¾ to 4½ cents and 4 to 4⅝ cents.

In East Texas, 60-62, 400 end point gasoline was priced generally at 4 cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 3⅞ to 4¼ cents a gallon for the 41-43 water white grade, and from 4 to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3½ to 4⅛ cents and 3¾ to 4⅜ cents.

Fuel Oil Quotations

Fuel oil prices were down ⅛ cent a gallon in several instances last week. In the Chicago market range oil was priced from 3½ to 4 cents a gallon. The No. 1 white oil was priced from 3⅜ to 3⅞ cents, and No. 1 straw from 3⅜ to 3¾ cents. No. 2 straw was 3¼ to 3⅝ cents. No. 3 oil was 3 to 3⅜ cents. No. 5 oils were 57½ to 65 cents a barrel. The No. 6 oil was quoted at 30 to 45 cents.

Excessive refinery runs cause gasoline stock jump

A sharp increase in crude runs to stills during the week ended January 21 was reflected in a corresponding rise in gasoline stocks. This undesirable acceleration of refinery operations carried the runs for the week to the highest level since January, 1938, an excessive average even for midwinter.

Crude oil production turned slightly upward during the week ended January 21, but the daily average of 3,264,450 barrels was not unseasonably high.

The jump of 50,000 barrels daily in crude runs to stills brought the average for the week to 3,310,000 barrels, a total considerably above the average daily oil production for the period. This is in sharp contrast to the 3,000,000-barrel average that was hoped for during January, February and March.

Gasoline stocks jumped to 75,455,000 barrels during the past week, an increase of 1,703,000 barrels. This brought total stocks on a level with those of July, 1938, but failed to equal the stocks of January, 1938.

Crude oil stocks trended downward, the United States total having been 271,819,000 barrels on January 14.

Gas and fuel oil stocks declined 631,000 barrels during the week ended January 21. The current total of 141,091,000 barrels is about 13,500,000 barrels under the all-time peak of 154,666,000 barrels established last November, but is about 23,000,000 barrels above the total of a year ago.

El Dorado, Ark.—Two drilling permits were authorized last week by the Arkansas Board of Conservation, as follows: Columbia County, Atlantic Refining Company, A. S. Crisp 1, located 652 east and 660 south NWc NW NE 23-17-20; Union County, Sklar Oil Company, J. S. Murphy 10, located 454 south and 178 east NWc west half SW NE 9-16-15.

Pipe Line News

Looping 198 miles of Illinois company's line

Work will start early in February for looping 198 miles of the system of Illinois Pipe Line Company in Illinois, Indiana and Ohio. Sheehan Pipe Line Construction Company, Tulsa, has the contract for 158 miles of the looping and White Deer Pipe Line Construction Company of Illinois will lay 40 miles in that state. H. C. Price Welding Company, Bartlesville, will have charge of the welding. The added facilities will be completed within 90 days.

New line to tie in gas outlet of three areas

Natural gas supply from three different areas, Kettleman Hills, Rio Vista and Sutter's Buttes, California, will be tied in with the construction of three sections of gas line in territory north and west of Sacramento by the Pacific Gas & Electric Corporation.

Lines are under construction to serve small towns northwest of Sacramento and now the company proposes to run a line from Marysville to Lincoln in order to serve the pottery kilns of the Gladding-McBean Company. This will require 24 miles of eight-inch line which will cross the Yuba and Bear rivers.

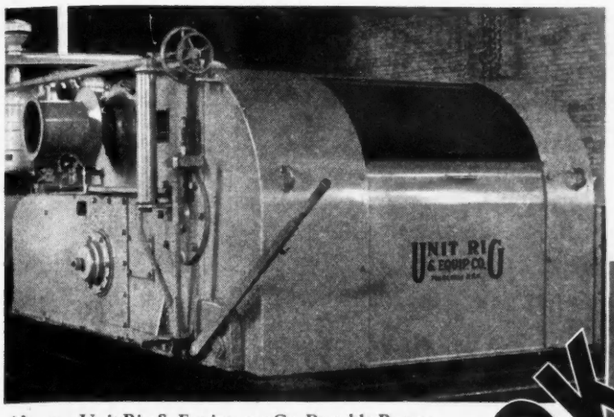
In order to hook up with supply lines to Sacramento, a similar link will be built from Lincoln to Roseville. Sutter's Buttes gas will be tied in with the supply reaching from Kettleman Hills to San Francisco Bay. The Rio Vista supply already

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

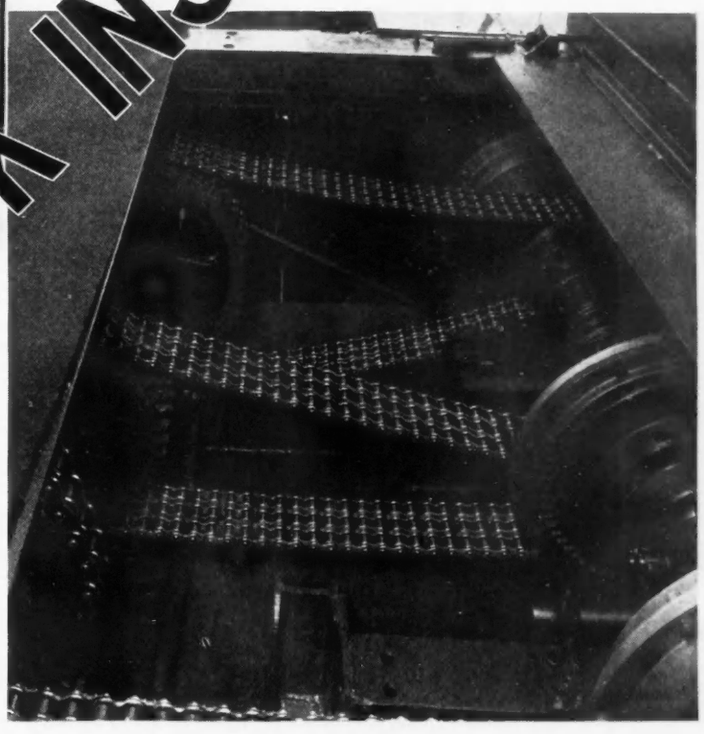
WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
September 25, 1937	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 25	3,083,900	3,025,000	293,463,000	82,412,000	137,801,000
July 30	3,316,400	3,240,000	288,514,000	76,864,000	144,294,000
August 27	3,388,500	3,255,000	285,029,000	71,754,000	146,926,000
September 24	3,251,150	3,220,000	280,278,000	68,605,000	150,468,000
October 1	3,231,800	3,235,000	280,852,000	68,602,000	151,759,000
October 29	3,237,500	3,145,000	275,824,000	67,590,000	153,719,000
November 12	3,243,250	3,180,000	273,394,000	67,551,000	*154,666,000
November 26	3,260,900	3,295,000	270,563,000	68,628,000	153,634,000
December 10	3,245,100	3,150,000	†269,509,000	68,587,000	150,779,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	144,823,000
January 7	3,214,900	3,170,000	272,325,000	72,818,000	143,333,000
January 14	3,243,600	3,260,000	271,819,000	73,752,000	142,460,000
January 21, 1939	3,264,450	3,310,000	.....	75,455,000	141,091,000
January 22, 1938	3,506,200	3,220,000	†303,679,000	82,785,000	118,433,000
Change in past year	—6.9%	+2.8%	—10.5%	—8.8%	+18.3%

* All time peak. † Lowest for 17 years. ‡ Stocks, January 15, 1938.

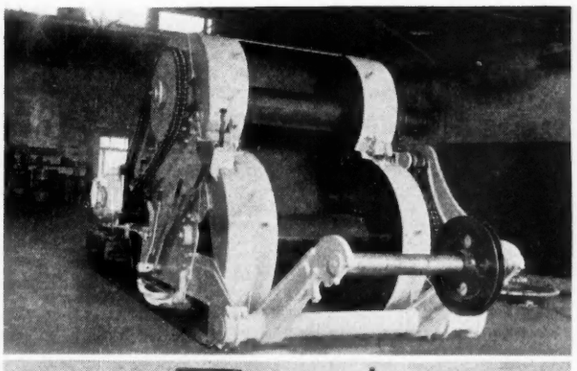


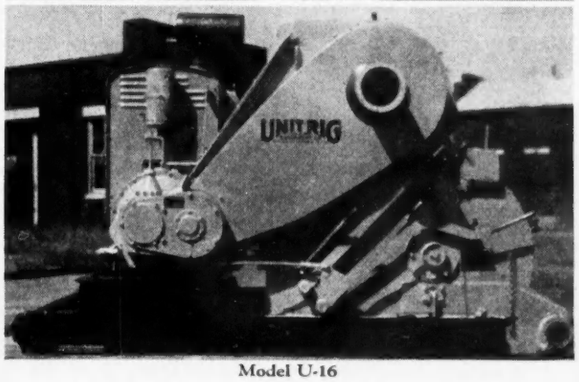
Above:—Unit Rig & Equipment Co. Portable Rotary Drilling Rig, Model U-10—equipped with Diamond Roller Chains for all drives.

LOOK INSIDE



OF THE FINEST OIL FIELD MACHINERY





Model U-16

Unit Rig Winch with Rotary Attachment. Driven by a 128 hp. (net) engine, this unit drilled 2072 feet in Illinois in 3 days, 21 hours. Diamond Roller Chain drives throughout.

Trade Mark

● You will find Roller Chain Drives on the finest oil field machinery everywhere.

From the first, Unit Rig and Equipment Co. have demanded the highest standard of drive performance on their rigs, winches and reverse gears . . . to match that of each machine as a whole.

Typical service is twenty-four months of steady work, including a year in the "Dust Bowl" and all of the drives on the rig still in perfect condition . . . Diamond Roller Chains and Sprockets throughout.

Performance records such as these are the natural result of Unit Rig advanced engineering, design and construction on Diamond . . . DIAMOND CHAIN & MFG. CO., 485 Kentucky Ave., Indianapolis, Ind. Tulsa, Okla.: 2238 Terwilleger Blvd.

DIAMOND

OIL COUNTRY ROLLER CHAINS

is tied in with this so service to all communities in Central California and the Sacramento Valley will be available later. Plans call for a line extension to Grass Valley, Nevada City and Auburn, passing through several smaller places.

Construction started on Indiana-Illinois oil line

Crude Oil Producing Company has started construction of a pipe line to tap the Posey County, Indiana, and the White County, Illinois, oil area. The line will run to Evansville, Indiana, where five acres for a terminal have been acquired on the Ohio river. Completion of the line is expected in early February.

Storage capacity for 75,000 barrels of crude will be provided at the terminal, according to R. Hal Compton, Owensboro, president of the company, but delivery will begin when there is capacity for 25,000 barrels. Crude from the West Kentucky field will be moved to the terminal by barge.

Oklahoma City.—Charter has been granted the Rocket Oil Company of Duncan, capital $300,000. The concern has been formed by officials of the Rock Island Oil Company to take over properties recently purchased from the Carter Oil Company in Southern Oklahoma fields. Incorporators are L. B. Simmons, H. B. Alspaugh and L. E. Kincannon.

Crude Production

Increase of 11,050 barrels daily brings United States output near to limit set by Bureau of Mines estimate for current requirements . . .

PRODUCTION of crude oil in the United States during the week ended January 28 registered a moderate increase over the preceding week. The daily output for the latest week totaled 3,264,475 barrels, an increase of 11,050 barrels over the previous week. At this level, daily production was 6125 barrels under the indicated average daily market demand for domestic crude, as estimated by the Bureau of Mines for January.

With the exception of California and Kansas, gains were the rule in all major producing states.

Texas production averaged 1,291,600 barrels daily, which was 11,200 more than in the previous week, but 41,300 under the Bureau of Mines recommendation and 27,942 barrels daily under the state proration program.

California averaged 623,800 barrels a day, which was 9300 barrels less than in the previous week, but still 35,400 barrels more than the estimated demand and 18,800 more than the recommendation of the Central Committee of California Oil Producers.

Oklahoma showed a gain of 3625 barrels, the average daily output having been 430,550 barrels. That was 69,150 barrels less than the indicated domestic market demand, but exceeded the state allowable by 2550 barrels a day.

Kansas output was down 6625 barrels from the previous week's level in averaging 148,575 barrels a day, which was 5325 barrels less than the federal allocation and the allowable prescribed by the state.

Louisiana last week averaged 263,200 barrels daily, which was 2575 more than in the previous week, 21,300 barrels a day more than the Bureau of Mines recommendation and 11,860 barrels more than the state allowable.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Jan.)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Jan. 28	Jan. 21
TEXAS—				
Texas Panhandle			64,100	57,600
North Texas			80,400	79,600
West Central Texas			30,600	30,800
West Texas			205,100	203,900
East Central Texas			92,100	92,300
East Texas Field			372,800	372,600
South Texas			233,400	231,800
Texas Gulf Coast			213,100	211,900
Total Texas	1,332,900	1,319,542†	1,291,600	1,280,400
CALIFORNIA—				
Long Beach			49,000	48,300
Santa Fe Springs			29,800	30,600
Huntington Beach			28,800	29,100
Dominguez			22,500	21,000
Ventura Avenue			33,600	34,300
Midway-Sunset			60,200	63,000
Kettleman Hills			56,700	57,700
Wilmington			85,400	84,200
Others			257,800	264,900
Total California	588,400	605,000*	623,800	633,100
OKLAHOMA—				
Oklahoma City			99,875	103,525
Seminole Area			95,125	88,525
Fitts			32,550	32,225
Others			203,100	202,650
Total Oklahoma	499,700	428,000	430,650	426,925
LOUISIANA—				
North Louisiana			71,900	69,025
South Louisiana			191,300	191,600
Total Louisiana	241,900	251,340	263,200	260,625

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Jan.)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Jan. 28	Jan. 21
KANSAS—				
Burrton-Haven			8,050	8,525
Russell County			22,050	21,475
Silica			10,375	11,200
Others			108,100	114,000
Total Kansas	153,900	153,900	148,575	155,200
NEW MEXICO	95,800	100,800	98,200	97,900
MICHIGAN	47,400		51,100	51,500
ARKANSAS	49,000		51,850	50,825
MOUNTAIN STATES—				
Wyoming	66,800		51,200	48,100
Montana	11,900		13,600	14,200
Colorado	3,900		4,200	4,150
Total Mountain States	82,600		69,000	66,450
EASTERN STATES—				
Pennsylvania Grade			68,900	69,700
Southern Illinois (New Pools)			129,500	124,000
Illinois-Indiana (Old Pools)			13,400	12,700
Others, Eastern			24,800	24,100
Total Eastern States	179,000		236,600	230,500
Total United States	3,270,600		3,264,475	3,253,425

† Daily average, considering Saturday and Sunday shut-downs.

* Recommendation of Central Committee of California Oil Producers.

WEEK'S DRILLING HIGHLIGHTS

Illinois

Drilling in the state is being spurred by fear of impending conservation legislation. A Wayne County wildcat looks good for commercial pumping production, barring water trouble. In Wabash County another test drilled through reported saturation to look for deeper pays; it was near Grayville.

California

An outpost of East Coalinga, Fresno County, was rated at 50,000 barrels of high gravity Eocene oil after having taken in the greatest thickness of sand of any well in the field. Another well, after taking in more than 500 feet of sand, was completed at 7700 feet as a paying proposition.

Oklahoma

Drilling concentrated in Greater Seminole area, which drew 14 of the state's 45 new locations. Two offsets to a lone producer are showing for small production at Hillsdale, Garfield County.

South Texas

Riverside, proven during the week as Nueces County's fifteenth oil field, may bring about an extensive drilling campaign. A 7500-foot completion at La Gloria gave Jim Wells County a new distillate field. East Alice, same county, got a major northeast extension. Hitchcock and Reynolds are testing 62 feet of oil showing Edwards lime in northeastern Frio County. Two wildcats on the Mirando trend, one in Duval and the other in Live Oak County, may contribute new fields.

Kentucky

Northeast of Belton in Muhlenberg County a wildcat flowing 150 barrels daily from McClosky lime topped at 1536 feet opened a new pool. Spottsville pool of Henderson County got an extension of 1½ miles north.

Texas Gulf Coast

Heavy oil was obtained on a production test of a wildcat on Echo prospect, Orange County. A southeast Esperson field flank test in Liberty County and a well in Clam Lake afforded new oil sands.

Arkansas

A flow of 147 barrels an hour heralded the eighth and possibly the largest well from the Permian lime horizon of Magnolia field, Colombia County. Rainbow City field of Union County was extended a half mile southwest.

Mountain States

A half mile southeast extension of Lance Creek, Niobrara County, Wyoming, called for two immediate offsets. On Dry Piney structure, Sublett County, southern Wyoming, a wildcat is trying to kill a 40 million cubic foot gas flow.

New Mexico

Lovington pool, Lea County, was assured of a major extension when an outpost cored a porous section of saturated lime. The north portion of the Langlie sandy lime area got another prolific lime producer.

New York-Pennsylvania

Gauging 14 million cubic feet, a Steuben County wildcat opened a new Oriskany gas field for New York.

Five tests have started following recent opening of a gas field in Sharon Township, Potter County, Pennsylvania.

South Louisiana

The district got its second new oil field of the year when Potash prospect in Plaquemines Parish produced commercial quantities of 28.2 gravity oil. South Roanoke in Jefferson Davis Parish got a 54.2 gravity sand at 10,120 feet. Gas and distillate were recovered from an east outpost of Lake Long, Lafourche Parish.

Kansas

Rice County accounted for the state's only new oil field, a strike 1½ miles from both Chase and Campbell pools, which yielded Arbuckle lime oil. Prusa pool of Barton County got a double extension. Topeka lime production was developed in Ainsworth, same county. Ellinwood, Barton County, and Gorham, Russell County, got extensions.

Michigan

Traverse lime contributed a new pool in Allegan County, 1300 feet of oil showing when the wildcat had reached 1663 feet. Production tests are planned for an Ottawa County wildcat that filled with oil and flowed after standing 72 hours with the hole bottomed at 1986 feet. Bloomdale, Van Buren County, got a major northwest extension from Traverse lime.

Summary of Wells Completed in the United States Week Ending January 28, 1939

	Completions	Oil Wells	Gas Wells	Failures	Footage Drilled	Total, 1939	Total this Date, 1938
Alabama	....	....	....	....	.....	....	.....
Arkansas	5	5	....	....	32,895	29	21
California	21	17	....	4	111,416	97	101
Colorado	2	1	....	1	11,009	2	2
Florida	....	....	....	....	.....	....	.....
Illinois	80	57	2	21	144,969	259	83
Indiana	....	....	....	....	.....	11	6
Kansas	22	14	2	6	61,372	101	205
Kentucky	16	7	....	9	16,681	77	67
Louisiana	15	8	1	6	50,769	75	116
Michigan	17	12	....	5	29,747	91	72
Mississippi	....	....	....	....	.....	....	2
Montana	4	3	....	1	10,126	7	5
Nebraska	....	....	....	....	.....	....	.....
New Mexico	12	12	....	....	49,486	61	48
New York	*11	8	3	....	24,405	*47	*54
Ohio	26	2	19	5	55,995	79	96
Oklahoma	37	23	2	12	116,670	171	203
Pennsylvania	*25	21	4	....	40,186	*119	*167
Texas	221	168	12	41	942,548	851	1,142
Utah	....	....	....	....	.....	....	.....
West Virginia	11	2	9	....	35,429	51	93
Wyoming	8	4	....	4	15,203	26	8
Total this week	533	364	54	115	1,748,906	2,154	2,491
Total last week	408	282	30	96	1,261,448	....	.....
Total this year	2,154	1,474	174	506	6,823,611	....	.....

* Including water-intake and pressure wells.

Oklahoma Fields

Drilling is concentrated in Greater Seminole area. Extension of Grayson partly responsible for work.

Tulsa.—Further concentration of drilling into the Greater Seminole area was evident in Oklahoma last week. The reworking of old wells in the St. Louis field, Pottawatomie County, plug extensions to that field, and the recent north extension of the Grayson pool, Seminole County, are responsible for the activity.

The state drew 45 locations last week, 14 being in the Greater Seminole area. From 37 completions, the state got 23 producing wells, whose combined initial production was only 3245 barrels.

Four discoveries of 1938 in Oklahoma are still without second producing wells. At Hillsdale, Garfield County, two offsets to the only producer are showing for production but indications are that output will be low. East of the Noble discovery, Cleveland County, the nearest test is running low on upper markers. Two offsets to the producing well at Meridian, Logan County, are making gas. A dry hole has been plugged west of the one producer completed southeast of Britton production, Oklahoma County.

The discovery wells in each instance are producing from the Wilcox formation.

Concentration of field activity in the Greater Seminole area has come through extension of the St. Louis field, Pottawatomie County, to the south and east and the discovery of dolomite production north of the Grayson pool, Seminole County.

23 Rigs Running

The St. Louis field had 23 rigs running last week. Both new wells and deepening and plugging back jobs in older producers kept the field active. The field has had steady development of this type for several months. It has stimulated output to the point that the Oklahoma Corporation Commission is proposing to add 8000 barrels daily to its allowable.

In the extension for the Grayson pool Atlantic Refining Company has a showing to indicate enlargement of the area to the southwest, a mile from the first well completed there and two miles from the center of most current drilling. Its Atkinson 1, NW NW SW 17-6n-6e, is still drilling in dolomite below 4000 feet. One drill stem test at 3833 feet had 100 feet of oil. A second test at 3836 feet had 90 feet of oil and 160 feet of water. A core between 3887 and 3897 feet was dolomite.

Most activity in the extension is in Section 12-6n-5e. Mid-Continent Petroleum Corporation pumped 250 barrels in 18 hours from Tiger 2, SW SE SE 12-6n-6e, from 3800 feet. Superior Oil Corporation had a pumping recovery of 100 barrels in 22 hours from Tiger 2, SW SE SE 12-6n-5e, total depth 3805 feet. Sun Ray Oil Company is getting ready for a test at 3862 feet in Swan 1, SW NE SE 12-6n-5e.

OKLAHOMA COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Caddo	1	0	1	0	6,880
Carter	1	0	0	1	8,315
Coal	1	0	0	1	905
Creek	6	4	0	2	17,316
Garfield	1	1	0	0	1,446
Hughes	1	0	0	1	6,153
Jackson	1	1	0	0	2,492
Lincoln	1	1	0	0	3,129
Marshall	1	0	0	1	792
Okfuskee	3	2	1	0	6,315
Oklahoma	1	0	0	1	6,778
Okmulgee	1	0	0	1	2,791
Payne	1	1	0	0	4,962
Pontotoc	5	4	0	1	7,943
Pottawatomie	7	5	0	2	25,733
Seminole	3	3	0	0	9,888
Stephens	1	1	0	0	3,920
Wagoner	1	0	0	1	912
Total	37	23	2	12	116,670

Reworked Failure Good

By reworking a previous failure, an offset to the discovery well of the West Little River pool, Seminole County, Rogers & Rogers got production at the previous total depth. Their Oakes 1, SWc 6-7n-6e, was drilled originally to 4433 feet in the Wilcox sand and had water. After other producers had been completed, this hole was plugged back, a whipstock set, and the hole carried to 4433 feet. Oil rose 2500 feet in the hole. Contact between water and oil is so close that exact setting of casing was necessary in order to get proper shut off.

New Pools Disappointing

In five instances new pools are proving discouraging as to extensions. The Hillsdale discovery in Garfield County has two wells showing near the single producer, but completions have not been possible. Mackey 1, NW NW SE 4-24n-8w, south offset to the producer, failed to return the oil load last week when put on gas lift. At 6697 feet, Wilcox formation, it flowed as much as 140 barrels. It was deepened to 6703 feet and 2-inch tubing run to 6640 feet, after which an oil load of 480 barrels was used before gas injection. North of the discovery well Champlin Refining Company, owner of the one producer and the two wells now testing, is coring and testing. Last depth, 6684 feet, found a show of gas. The discovery well is still making oil and water and flowing steadily.

The Cleveland County test east of the Noble discovery well gave little encouragement for extension in that direction. Burke-Gries Oil Company was still drilling in Alberts 1, SE SW NW 19-7n-1w. The bit passed out of the Hunton lime at 7195 feet. Top of that formation was at 6890 feet. The thick section of this lime indicated that the well would be 50 feet lower than the discovery well, which is producing from the Second Wilcox sand.

So far only gas production has come from the two offsets to the single producing well in the Meridian field, Logan County. Helmerich & Payne, Incorporated, and associates have 5,000,000 cubic feet of gas in Humphreys 1, NE NE SW 27-16n-1e, southwest offset to the producing well. At 5314 feet it had water. Gas was found after plugging back to 5170 feet. The other offset, Strain 1, NW NW SE, one location south of the producer, has gas output in excess of 25,000,000 cubic feet, after acid treatment in dolomite between 5200 and 5228 feet.

After plugging back and testing higher formations, the west offset to the discovery well southeast of Britton, Oklahoma County, was abandoned last week. Olson Oil Company drilled Seaberger 1, SW NE 4-12n-3w, to 6802 feet into Second Wilcox sand, source of the oil in the discovery well one location east. This formation would not produce so the First Wilcox sand, the Viola and Oswego limes were tested by plug back jobs.

An attempt to extend Ramsey pool, Payne County, to the east and beyond the 640-acre community block, was in progress last week. Stanolind Oil & Gas Company et al had top of the Mississippi lime at 4461 feet in Alberts 1, SW SW NE 18-18n-2e. On this formation the well was running 33 feet lower than producing wells to the west. Should the lime section prove normal with the producing part of the field, this well stands a chance of making a producer. Three wells are drilling in the community block, which has 17 producers.

Garber Effort Fails

An effort to get deep production in the old Garber pool, Garfield County, was a failure last week when Jones Associated Oil Company abandoned Wolfe 1, SE SW NW 13-22n-4w, after drilling to 4626 feet in Arbuckle lime, top 4595 feet.

Activity was resumed in the deep Washita County wildcat test of Continental Oil Company, Proctor 1, C NW 28-10n-25w, after a stronger derrick had been erected. The hole is now underreaming below 9000 feet, so 9-inch casing can be set near the total depth, 10,195 feet.

An effort to extend gas production southwest of the single producer near Davis was in doubt last week. Comet Drilling Company was below 2400 feet in Tarbey 1, C NW SE 17-1n-2e. A fourth of a mile northwest Gailbreath & Dutton got gas production in Wolfe 1, SE SE SW 8-1n-2e, by perforating between 2227 and 2286 feet. Recently the well has been making a small amount of oil.

Sinclair withdraws as East Texas refiner

The withdrawal of the Sinclair Refining Company as an active refining unit in the East Texas field effective January 15, reduces the number of operating plants to eight. The above company has been stripping crude of gasoline to meet its market demand within the trade territory and dispatching the fuel residue by pipe line along with a mixture of natural gasoline to its refinery at Houston. The company's plant near Camps Switch was rated at 2000 barrels daily, and had been in operation since 1931.

In Tulsa

STATEMENT OF CONDITION

December 31, 1938

RESOURCES

Cash and due from Banks	$21,613,355.74
U. S. Government Securities	10,311,488.79
Municipal Securities	3,144,465.39
Industrial Securities	774,164.57
Loans and Discounts	19,735,762.31
Overdrafts	863.07
Other Real Estate	11.00
Federal Reserve Bank Stock	120,000.00
Income Earned not Collected	105,729.59
Bank Premises and Fixtures	1,307,155.64
TOTAL	$57,112,996.10

LIABILITIES

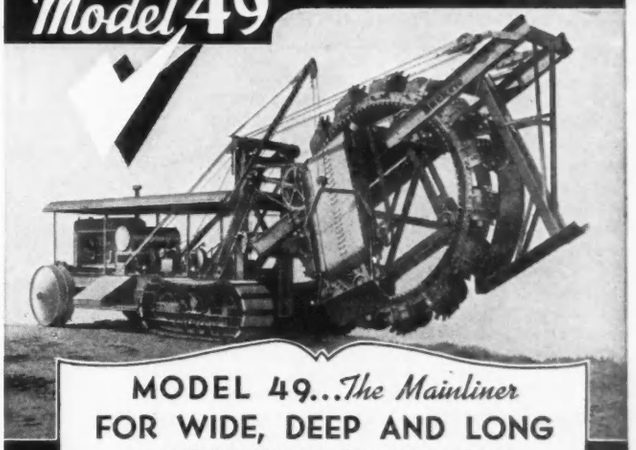
Deposits		$52,217,199.57
Income Collected not Earned		104,233.39
Taxes, Interest, and Expense-Accrued		112,039.37
Capital	2,000,000.00	
Surplus	2,000,000.00	
Undivided Profits and Reserves	679,523.77	4,679,523.77
TOTAL		$57,112,996.10

The FIRST NATIONAL BANK and TRUST COMPANY of TULSA

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Buckeye

Model 49



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FOR WIDE, DEEP AND LONG TRENCHING ANYWHERE

BIG pipeline trench—to 43" wide and 8' deep, moves steadily along when Buckeye Model 49 starts down the line. No soil condition short of solid rock can stop the powerful march of this machine. Choice of a wide range of digging speeds enables the operator to speed up where going is easy, and gives him perfect mastery of the tough spots as well. Transmission drives for all operations are fully enclosed. Here is streamlined performance — with profit for you.

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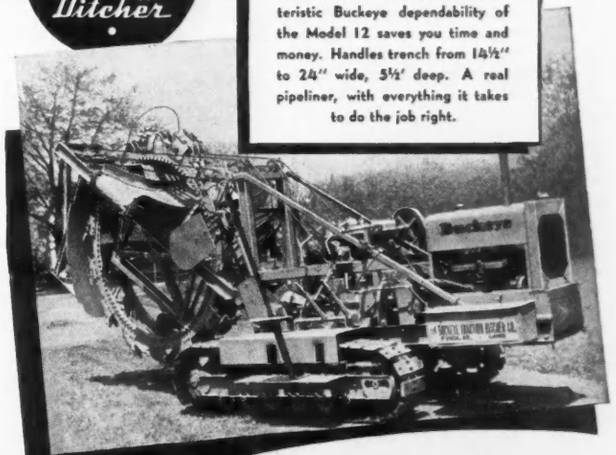

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Kansas Field Developments

Rice County accounts for only new field of week.

Prusa, Ellinwood and Gorham pools get extensions.

Wichita.—Rice County accounted for the one new oil field credited to Kansas last week. A mile and a half east of the Chase field and that distance from the small Campbell pool, Cities Service Oil Company established potential of DeWitt 1, C S L NE 32-19-9w, from 3195 feet in the Arbuckle lime.

Two extensions were completed for the Prusa pool, a discovery of late in 1938. One of these was a half mile north of one producer while the other was a south offset. This development indicates that this Barton County strike will have rapid development. Also in Barton County the Ainsworth field came into Topeka lime production when a test was plugged back and perforated after finding the Arbuckle lime dry.

Extensions for the Ellinwood field, Barton County, and the Gorham field, Russell County, indicated by showing a week previous, came into the completion class last week.

As a whole Kansas field development continues at a moderate pace. Last week 22 tests were started, a total identical with the number of wells completed. Producing wells numbered 4 and their combined potential rating was 19,827 barrels.

The new pool in Rice County was assured by a pumping potential of 1539 barrels from the community test of Cities Service Oil Company, DeWitt 1, C S L NE 33-19-9w, total depth 3195 feet in Arbuckle lime, top 3174 feet.

KANSAS COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Barton	3	1	0	2	10,148
Butler	1	0	0	1	3,306
Cowley	3	2	0	1	7,244
Ellsworth	1	0	0	1	3,256
McPherson	1	1	0	0	2,999
Rice	4	4	0	0	9,801
Russell	5	4	1	0	14,776
Sedgwick	1	0	1	0	2,221
Stafford	3	2	0	1	7,621
Total	22	14	2	6	61,372

It is hemmed in by dry holes except to the northeast. Absence of dry holes in this direction leaves the possibility that production may connect with that of the small Campbell pool, 1½ miles away. It is an equal distance east of the large Chase pool.

The well gave excellent performance for completion. After setting 7-inch casing at top of the Arbuckle lime, the hole began filling when plug was drilled and stood 1500 feet in oil at 3185 feet. When 3195 feet was reached the hole was standing 3100 feet with oil. Because of the rapid fill the well was completed without acid treatment. The oil tested 46.6 gravity at 65°F.

Prusa Extended

Indication that the Prusa pool, Barton County, a discovery of December, 1938, will draw immediate development came with extensions in two directions from the discovery well. One of these was a half mile north of the discovery well. Sinclair Prairie Oil Company made ready for a pumping potential test for Prusa 1, C S L NE 20-16-11w. At 3305 feet in Arbuckle lime the well was swabbed through casing and made 400 barrels in 5 hours. The fluid column could not be lowered below 2200 feet. Tubing will be run so the well can be tested for potential rating. The other extension was only one location south of the discovery well; Sinclair got pumping potential of 2110 barrels in Seyfert 1, C NE NE 29-16-11w, total depth 3362 feet in Arbuckle lime.

A second producing formation for the Ainsworth pool, Barton County, came with successful plug back of a dry hole in the Arbuckle lime, only previous source of production in the field. Skelly Oil Company plugged back in Gage 1, SE SW 35-16-13w, and perforated with 94 shots between 2908 and 2929 feet to get a pumping potential of 451 barrels.

Ellinwood-Silica Connected?

Performance of the northeast extension well in the Ellinwood field, Barton County, gives indication that this field may be connected with the older Silica field, also in Barton County. Stanolind Oil & Gas Company got potential of 2244 barrels in Panning 4-14, NE SW SE 10-21-11w. Last week oil rose 300 feet in the hole after the Arbuckle lime had been drilled to 3283 feet. It was swabbed and treated with acid before going on the pump. This well is five-eighths of a mile northeast of Ellinwood production. It is an equal distance from the southwest edge of present production in the Silica field.

Another field extension, indicated last week, was assured by completion for 362 barrels from the Gorham sand of Mills' 1, SWc 34-13-15w, Russell County, at 3317 feet. Top of the formation was 3315 feet. This well is a half mile north of production and a fourth of a mile west.

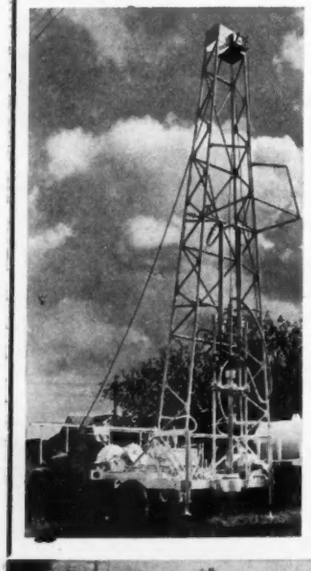
Among the wells showing for production but not complete, first place was held by the indicated extension of a half mile to the southwest for the Buhler pool, Reno County. Here Westgate-Greenland Oil Company had saturation in the Arbuckle lime between 3936 and 3941 feet in Haggerty 1, NE NE SW 36-22-5w. Standard tools are being installed to drill deeper before testing.

A mile west of production in the Morel pool, Graham County, Continental Oil Company had sufficient saturation to set casing for testing Drumm 1, SE NE 16-9-21w. The test was drilled to 3699 feet in Arbuckle lime.

Another test rigging standard tools for drilling is Champlin Refining Company's Grant 1, NWc 21-21-11w, Barton County, between the Clawson and Hagen pools. It found saturation in the Arbuckle lime 3371 feet.

Testing continues at the Barton County wildcat of Amerada Petroleum Corporation, Kruckenberg 1, C NE NE 14-19-15w. After acid treatment at 3585 feet in Arbuckle lime the well swabbed only 25 barrels of fluid, 20 percent water.

Another Barton County wildcat which has been showing for production for several weeks is still not complete. Long & Johnson, Eveleigh 1, SW NE 3-18-14w, will be acid treated at 3371 feet in Arbuckle lime. It has swabbed small amounts of oil. It is west of the Hoisington field.



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Illinois Developments

Pending conservation legislation spurs drilling.

Wayne County wildcat promises to make good pumper.

Olney, Ill.—With some form of conservation legislation expected by many observers to be enacted by the Illinois legislature at its current session, drilling operations are proceeding without the customary seasonal let-down, despite ground and weather conditions far from favorable. The drive is not only by independent operators, but just as noticeably by major companies.

New Penn Development Company's J. L. Wagoner 1, NW SW NE 30-2s-9e, Leech Township, Wayne County, acidized the McClosky lime, where 8 feet of tight saturation was found a week ago. Barring water trouble, the wildcat will make a good pumper. Bottom of the test is at 3445 feet. It is on a 18,000-acre lease, and operators plan additional drilling regardless of the outcome of this well.

Northeast of Carter Oil Company's Dix field of Jefferson County, Chicago Syndicate's Williams 1, NW NE SE 36-1n-2e, Raccoon Township, Marion County, swabbed oil and water after drilling in to a McClosky saturation between 2438 and 2448 feet. It was being plugged back in an effort to shut off water.

In Coles County, Kingwood Oil Company's Tiven 1, C SW NE SE 30-13n-8e, Humboldt Township, near Mattoon, was abandoned at 3399 feet.

Test Fails

While reporting a 24-foot saturated Niagaran saturation below 3050 feet, Max Pray's J. Langenfeld 1, NW SW NW 4-2n-1e, Marion County, failed to swab oil when drilled in last week. It was shut down for orders. The well, on the basis of early reports, promised to extend the Niagaran lime producing area ¾ mile from the discovery, Southwest Oil & Gas Company's Benoist 21, north of Sandoval.

A sand with a "fairly good showing of oil" was reported passed through between 1807 and 1826 feet by Longhorn Oil Corporation's Mrs. J. M. Helm 1, SE SE NW 15-3s-14w, Compton Township, Wabash County, 1½ miles northeast of Grayville. The wildcat, 4 miles east and across the Wabash river from the Cooper pool opener in Gibson County, Indiana, is being carried deeper.

In the Russell Township gas area of Lawrence County, Kesl & Fox's Fisher & Tewault 1, C SE NE 12-4n-11w, had a 1,000,000 cubic feet gas flow in the shallow Bridgeport sand. Located midway between two dry holes a half mile apart, the test had been given wildcat classification. It was deepening to the Buchanan sand where large gas flows were encountered in Russell Township wells previously completed.

Continuing its program of attempting to link up pools in north Wayne County with the Clay City pool of Clay County, Pure Oil Company last week announced two semi-wildcat Wayne County locations. The Florence Behymer A-1, C W½ SE NE 4-1n-8e, 1 mile northwest of C. C. Harwell et al's Fitch 1, in north Elm River Township, which is now flowing oil with considerable water, and 3 miles south of the Clay City field. The W. H. Evans 1, in C W SW NE 28-2n-8e, is 1 mile south of the Clay City pool's present southern extremity, 2 miles north of the Behymer location, ¾ mile west of the Gill-Riggs pool, inactive for the past year, and 2 miles east of the Bruner Kuyock area in west Zif Township.

ILLINOIS COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Bond	1	0	0	1	1,130
Champaign	1	0	0	1	610
Clark	1	1	0	0	320
Clay	4	4	0	0	12,141
Clinton	7	5	0	2	9,772
Coles	1	0	0	1	2,105
Fayette	19	14	1	4	30,475
Hancock	1	0	0	1	531
Jackson	1	0	0	1	2,007
Jefferson	5	3	0	2	11,278
Lawrence	2	1	1	0	2,140
Marion	23	21	0	2	41,823
Montgomery	1	0	0	1	700
Randolph	1	0	0	1	1,910
Richland	3	2	0	1	8,403
St. Clair	2	1	0	1	1,812
Shelby	1	0	0	1	2,129
Wabash	1	1	0	0	1,540
Washington	1	0	0	1	1,551
Wayne	4	4	0	0	12,592
Total	80	57	2	21	144,969

Illinois 1938 production shows 200 percent gain

Urbana.—Illinois oil production during 1938 totaled 23,601,000 barrels, a gain of more than 200 percent over the 7,426,000 barrels produced in 1937, Dr. M. M. Leighton, chief of the state geological survey division, reported last week. The year's total was 1,000,000 barrels more than the estimate set early in the year by state geologists.

Of the past year's production, new fields yielded 19,376,000 barrels, compared to 2,284,000 barrels in 1937. Old fields produced 4,225,000 barrels, a slight drop from the 4,542,000 barrels of a year ago.

A total of 2208 producing wells had been drilled in new pools up to December 31, 1938, Dr. Leighton reported. In the development of new pools, 182 dry holes have been drilled within a quarter mile of production.

Pools, and the number of producing wells in each, are: Bartelso, Clinton County, 37; Patoka, Marion County, 115; Clay City, Clay County, 222; Rinard, Wayne County, 1; Noble, Richland County, 145, of which 8 were abandoned during 1938; Cisne, Wayne County, 25; New Centralia, Clinton and Marion counties, 526; Beecher City-Louden, Fayette County, 501; Olney, Richland County, 29; Dix, Jefferson County, 35; Aden, Wayne County, 4; Flora, Clay County, 9; Schnell, Richland County, 5; Lake Centralia-Salem, Marion County, 480; Ina, Jefferson County, 1; North Aden, Wayne County, 40; Leech Township, Wayne County, 2; St. James, Fayette County, 24; Roaches, Jefferson County, 2; Elk Prairie, Jefferson County, 1; Sorento, Bond County, 1; Boyleston, Wayne County, 1; Marcoe, Jefferson County, 1, and Mt. Erie, Wayne County, 1.

New Illinois map

Preparation of two new maps of sections of the Illinois oil basin area has been announced by the Illinois State Geological Survey at Urbana. One covers the Fairfield region, embracing the Aden and North Aden development, and the other the Kinmundy region, showing drilling in the St. James field.

The maps, which are on a scale of two inches to the mile, show towns, roads, sections, township and county lines, well locations, rig locations, drilling wells, oil and gas producing wells, dry holes and abandoned wells as of December 12, 1938.

Indiana

To resume on Knox County wildcat; state is quiet

Evansville, Ind.—Midwest Development Company's P. F. Jackson 1, NW NE Donation 54-3n-9w, Palmyra Township, Knox County, near Vincinnes, is to resume drilling from 3057 feet. The wildcat has been shut down for the past month.

Water was reported successfully shut off at J. B. Bond's Fred J. and Ida Keck 1, SW NE SW 6-7s-11w, 1 mile east of production in Sun Oil Company's Heusler Dome pool of Posey County, and a pump was being installed. Operators believe they have a 60-barrel producer. The outpost is over the line in Vanderburgh County.

Sun Oil Company's E. J. Schroeder 2, NE NE SE 1-7s-12w, Marrs Township, Posey County, in the Heusler Dome pool, was dry in the Waltersburg sand, where the No. 1 on this lease is a 150-barrel pumper, and had salt water in the Jett sand at 1900 feet. It is being deepened and may be carried to the McClosky lime. The company has erected derrick for the H. A. Hahn 1, SE NW SW 1-7s-12w, Marrs Township, which will be taken to the Waltersburg sand.

East 1¼ miles from Bond's Keck outpost and 2¼ miles from Heusler Dome production, Gene Shirley and Judge Blodgett Priest will drill on a 20-acre tract in the E NW NE 8-7s-11w, Vanderburgh County. Drilling will start as soon as equipment can be brought in from Centralia, Illinois.

Parshall - Graham Oil Company's M. Simpson 1, SW NE NW 23-1n-10w, Johnson Township, Knox County, was being given acid treatment at various depths and at last report had drilled back to the original total depth of 3399 feet and cemented. The plug was to be drilled late last week and the well acidized again. Bottom is in the Niagaran lime. Operators still maintain they have a commercial producer, but delay in completion of the wildcat is diverting interest to other sections.

In the vicinity of the Gibson County pool opener of late last year, material was

moving in for Ray Ryan and J. L. Smith's W. Dunn 1, NE SE SE 18-3s-13w, Wabash Township. It will be drilled to a contract depth of 2950 feet by J. B. Bond and associates. The discovery was completed in the McClosky lime at 2920 feet. R. B. and Earl Hollandsworth and Joseph Bander, Longview, Texas, operators, will drill an offset to the discovery 240 feet south. Another venture for the area was announced for Section 21-3s-13w, Wabash Township, which J. H. McClurkin said will be a cooperative test to be drilled to 5000 feet with a cable tool outfit. An estimated six months will be taken to drill the test, and all formations will be carefully examined.

Acid treatment of the McClosky will be given this week at L. L. Le Moine and J. Ervin Taylor et al's Prudential Life Insurance Company 1, NE SW NW 7-7s-7w, Spencer County. Seven-inch casing has been set to 1710 feet. Bottom is at 1783 feet. If commercial production is not obtained from the McClosky, where a ten-inch core showed little porosity, it will be plugged back to 15 feet of Jett sand saturation.

To ask for bids on leasing Mississippi sound acreage

Proposals for leasing mineral rights in the Mississippi Sound will be received February 1 by the Mississippi State Mineral Lease Commission at Jackson, at which time the state body will also consider data for oil - drilling procedure.

The decision to ask for bids for leasing the gulf waters for oil exploration was made after consideration of objections raised by fishing interests and beach property owners, said Gov. Hugh White, ex-officio chairman of the commission. An inspection of operations on the adjacent Louisiana coast, where the possibility of damage to marine life was observed, had been undertaken by the governor and other Mississippi officials before the decision to receive bids was made.

NEW YORK COMPLETIONS

District	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Allegany	7	6	1	0	12,938
Allegany*	2	2	0	0	2,637
Steuben	1	0	1	0	3,771
Total	10	8	2	0	19,346

*Water (pressure) wells.

OHIO COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Athens	2	0	2	0	3,423
Coshocton	1	0	1	0	920
Cuyhoga	1	0	1	0	2,828
Hancock	2	0	0	2	3,473
Harrison	1	0	0	1	4,790
Holmes	1	0	1	0	747
Knox	2	0	2	0	5,327
Licking	2	1	1	0	1,416
Monroe	3	0	3	0	4,038
Muskingum	2	0	2	0	9,899
Noble	1	0	1	0	1,565
Perry	2	0	1	1	6,807
Washington	5	1	3	1	3,135
Wayne	1	0	1	0	7,727
Total	26	2	19	5	55,995

WEST VIRGINIA COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Barbour	1	0	1	0	4,389
Cabel	1	0	1	0	3,820
Calhoun	1	1	0	0	1,900
Kanawha	4	0	4	0	17,211
Logan	1	0	1	0	3,322
Monongalia	1	0	1	0	2,012
Ritchie	1	0	1	0	1,980
Wood	1	1	0	0	795
Total	11	2	9	0	35,429

Kentucky Fields

New pool opened near Belton, Muhlenberg County. Spottsville proven area outpost closely watched.

Owensboro, Ky.—Fred Phillips' Shearn Coal Company 1, SEc SW of lot 7 on the Shearn block, northeast of Belton, eastern Muhlenberg County, started flowing when 7-inch casing was run at the rate of 150 barrels a day from the McClosky lime, topped at 1536 feet, opening a new pool. The oil tests 47.5-gravity. Bottom of the well, which is to be acidized, is at 1541½ feet.

The wildcat is on the up-thrust of a fault line northeast-southwest, and is expected to start considerable development in the area. Major companies holding acreage in the immediate vicinity are Phillips Petroleum Company and Skelly Oil Company.

A 1½-mile north extension to the new Spottsville pool of Henderson County was assured when Maurice T. Grugg & Harry Fotiades' T. Cooksey 1 cored 12 feet of excellent McClosky saturation below 2230 feet. Bottom is at 2250 feet. While the rotary was being moved to make room for a cable outfit to drill in, right-of-way for a pipe line was being secured by the R. Hal Compton Crude Oil Purchasing Company.

Another closely watched outpost to the Spottsville proven area, Ralston & Sales' Annie Stewart Ferry 1, was tied up with a fishing job at 2050 feet. Successful completion of this test will touch off a townsite drilling campaign in Spottsville. Offsetting two flowing wells, one of which is the discovery, Magnolia Petroleum Company's Annie Green 2 was dry in the McClosky. The hole was being filled with rotary mud pending completion of the company's J. E. Casey 1, in the same area, drilling at 3010 feet last week on its way to the Devonian, expected between 4000 and 4200 feet. Casey 1 now ranks as the deepest hole drilled in the county, while the Magnolia company's S. Green 1 is the state's deepest producer.

H. & H. Drilling Company has a steel derrick up for Sun Oil Company and Kentucky Natural Gas Company's Jim Bukins 1, on a lease owned by George Trigg about 1 mile east of the Trigg 1. The first well in this vicinity was abandoned last fall because of salt water. The new wildcat is in the Corydon section, Henderson County.

Palmer Drilling Company was resetting casing on W. H. Parks et al's O. G. Letcher 1, wildcat test in the Scuffletown section of Henderson County, made necessary by bad threads at the ends of each pipe. It was at 2100 feet, and planning to start coring at 2200 feet.

Sun Oil Company will drill the 140-acre Ezra Allgood lease in the Gilmore pool of east Henderson County. The tract, on which a trace of oil was found at 1868 feet 9 years ago, indirectly led to discovery of the nearby Birk City pool, opened 10 months ago and numbering more than 100 producers today. Hoozier Drilling Company, opener of the Birk City pool, had the old Allgood test in mind when choosing a location on the C. T. Blackwell farm. The Gilmore pool, opened since discovery of the Birk City area, numbers six producers in nine holes drilled. Sun's well will be drilled by Hancock & Hancock Drilling Company, Gladewater, Texas. It offsets the Gilmore 1, doing 80 barrels a day under pinched pumping.

Owensboro Pipe Line Company has started construction of a line from Drakesboro through the Rochester-Huntsville pool to Silver City, Butler County, where considerable shallow drilling has been going on in the past few months. Drakesboro is on the L. & N. Railroad. The line will be able to handle 1000 barrels a day. Drilling in the Butler County area is to the Jett sand, found at about 180 feet, and to the McClosky lime, at about 580 feet. Among independents active in the area are Nich Shiarell, Owensboro; J. C. Miller, Owensboro; C. W. Hicks, Tulsa; Boyd Patrick, Owensboro; J. H. McClurkin, Bowling Green, and Joe Slagel, Owensboro.

Among new starts announced during the week are Shindal Oil Company's A. B. Vaughn 1, 5 miles west of Clay, Webster County, rigging up, and Pennsylvania-Kentucky Oil Company's T. Anderson 1, 1 mile east of Quality, Butler County, moving in materials.

KENTUCKY COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Butler	2	1	0	1	323
Christian	1	0	0	1	929
Daviess	7	4	0	3	11,451
Hancock	1	0	0	1	925
Lee	1	0	0	1	498
McLean	1	0	0	1	500
Ohio	2	1	0	1	1,565
Powell	1	1	0	0	490
Total	16	7	0	9	16,681

Large gasser opens new Steuben County field

Pittsburgh—New York State Natural Gas Company's F. Boyd 1, 6 miles north and a little west of the Woodhull Township field of Steuben County, New York, and 4 miles northeast of Jasper, opened a new Steuben County Oriskany sand gas field when it gauged 14,000,000 cubic feet at 3902 feet. It is in Cameron Township, not far from a previously drilled dry hole.

The wildcat, on a location with an

PENNSYLVANIA COMPLETIONS

District	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Bradford	17	17	0	0	22,950
Bradford*	3	3	0	0	4,050
Middle District	1	1	0	0	1,400
Butler-Armstrong	1	0	1	0	1,800
Greene	2	0	2	0	4,810
Potter	1	0	1	0	5,176
Total	25	21	4	0	40,086

*Water (pressure) wells.

elevation of 1515 feet, topped 48 feet of Tully limestone at 3137, topped the Onondaga at 3871 feet and the Oriskany at 3891 feet. It is bottomed 11 feet in the sand, where it had an initial rock pressure of 1880 pounds.

In the vicinity of Belmont Quadrangle Drilling Company's R. M. Wolcott 1, wildcat in Sharon Township, Potter County, Pennsylvania, which four weeks ago opened an Oriskany sand pool with an initial gauge of 17,000,000 cubic feet, five tests are drilling or located. Deepest is Allegany Gas Company's Dickerson 1, drilling at 1200 feet. Other drilling wells are Belmont Quadrangle Drilling Company's N. Kemp 1 and New Penn Development Company's Gorton-Kemp 1. Empire Producing Company was rigging up F. Dickerson 1, and G. L. Cabot, Inc.'s Plank School 1 was a location.

Carnegie Natural Gas Company's A. S. McCullough 1, deep test in Jefferson Township, Mercer County, had a small gas show at 4991 feet in the Newburg horizon but was drilling deeper at 5018 feet.

Inland Gas purchases Kentucky Fuel Gas assets

Kentucky Fuel Gas Corporation's complete physical assets have been acquired by the Inland Gas Corporation for $151,192.48—the high bid submitted at an auction conducted at Catlettsburg, Kentucky.

The assets included oil and gas leases aggregating 16,117.96 acres in Boyd County, oil and gas rights in fee in 21,101.43 acres in Boyd and Carter counties, and all rights of way and easements, all pipe lines, equipment, machinery, tools, drilling equipment, meters, tubing, casing, regulators, fittings, field supplies and other tangibles.

Texas commission has new investigation unit

The Texas Railroad Commission has created an "investigation unit" to take care of any enforcement problems involving an audit by commission accountants. W. A. Weeks, commission auditor, is in charge of the unit and has two men in the field now gathering data.

The order provides that this division will handle "all audits and investigations of the books and records and operations of producers, transporters, storers, refiners, treaters and/or marketers of crude oil, natural gas and/or the products of the same," . . . and that "Mr. Weeks will have complete charge and be directly accountable to the commission."

Agitating for drilling crew wage increase

Nightly meetings of the drilling crew employes in the El Dorado, Arkansas, area were being held last week and were to continue to February 1 to complete organization preparatory to pressing demands for a $1 a day wage increase. Demand for the increase, effective February 1, has been made to contractors by the El Dorado Local No. 434 of the Oil Workers International Union, a C. I. O. affiliate.

Tours were being conducted by union leaders through Arkansas fields in an effort to enlist recruits before pressing the wage increase demand. R. B. Callaway, union representative, declared the wage demand is a result of a study of oil workers' economic conditions.

Would change assessing of leases as "grazing" lands

Correction of New Mexico taxation laws which allow lands leased for oil, gas and mineral potentialities to be assessed as grazing lands has been urged by Tom W. Neal, legislative reference bureau director, in his annual report to the state legislature.

The lands, "especially on the east side of the state," Neal declared, have a "very definite value, ranging for mineral purposes from $2 to sometimes as high as $2000 per acre. These interests and estates in the land are held by speculators through the years and no taxes are paid. Especially is this true in Eddy, Lea, Roosevelt, Curry, De Baca and others of the eastern and northeastern counties of the state, and it is probably also true in the San Juan Basin and in some portions of McKinley County.

"This character of property fluctuates so rapidly that the present 4-year system of valuing real estate is impractical," Neal added. "Probably 20 or 30 million dollars of value is left off the tax roll of the several counties because of this condition."

Criticism of present assessment of oil lands in southeastern New Mexico where one well is drilled to 40 acres was also voiced. "Many operators by operating 40 acres or one unit are holding free from taxes many hundreds of acres proven by drilling on contiguous lands to be oil bearing property, frequently of $2000 to $3000 per acre value."

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West Texas Fields

Production in Foster field, Ector County, extended east. Flow of late Seminole completion emphasizes importance.

Midland, Texas.—The productive limits of the Foster field, Ector County, were broadened to the east when H. J. Brown and York & Harper, Inc.'s J. M. Gist 1, NW NW SW T&P Section 9, Block 42, T-2-S, flowed at the rate of 200 barrels initial while drilling pay section at 4156-4269 feet. This outpost is a half-mile northeast of the nearest producer, and is due to register a large potential after the broken lime pay is given the usual nitro shot. The Foster field is in line to become one of the most active drilling centers in Ector County this year. This extension well will stimulate drilling in the northeast portion of the area.

Continental Oil Company's L. E. Wight 1-8, near NWc SE T&P Section 8, Block 43, T-1-S, Ector County wildcat midway between the North Cowden and Goldsmith fields, registered high structurally in drilling to 4120 feet. It is near the center of a 10¾-section block held by the company. Top of the Yates was called at 2890 feet, and brown lime at 3740 feet.

The importance of the Seminole field, Gaines County, as a potential drilling center was enhanced the past week when Amerada Petroleum Corporation's T. S. Riley 2, northwest offset to the discovery, flowed 987 barrels of 34.6 gravity oil in 5 hours through open tubing and casing after second treatment of lime pay at 5167-5224 feet with 5000 gallons of acid. The well flowed 231 barrels the first hour and 209 barrels the second hour, with the output settling to 184-180 barrels the remaining 3 hours. Previously this well attracted attention through having cased off the regular gas and oil pay in cementing 5½-inch at 5152 feet, and in deepening with 4¾-inch diameter hole encountered pay section heretofore rated as probable water-bearing formation. Riley 2 flowed 425 barrels natural in 12 hours, and tested 999 barrels in 11 hours after first treatment with 2000 gallons of acid. The highly porous lime took the second acid treatment at pressures ranging from 750 to 900 pounds.

A direct pipe line connection is necessary for the Seminole field before a major drilling program can materialize. A third producer for the northwest extension sector was recorded when Atlantic Refining Company and Osage Drilling Company's Tippett 1, west offset to production, tested 594 barrels initial after using 1000 gallons of acid at 5060-5139 feet, with an elevation of 3367 feet. The 12 flowing producers are dependent upon tank trucks for market outlet. Ten direct offsets to wells remain to be drilled.

Two Wildcat Starts

Yoakum County listed two semi-wildcats the past week. Shell Petroleum Corporation made location for Waples-Platter Company 1, SW SW NW Section 616, 3 miles northeast of the Bennett field. This test is an obligation assumed last September in leasing 1360 acres at $7.50 per acre cash and $25 per acre payable from production. Texas Pacific Coal & Oil Company is starting operations on Brownfield 1, near SE SE NE Section 802, 1½ miles north of flowing production in the east portion of the Wasson field and 3⅓ miles southwest of the Bennett field. This test will help determine if the two fields are to be linked by production.

Northwestern Gaines County is to be given a fourth test on the E. H. Jones land and between structurally high failures drilled by the Argo Oil Corporation and Continental Oil Company. The latter drilled two tests in 1937. A. E. Everts et al have sold acreage to support a 5500-foot depth contract, or sulphur water in the big lime, and are to drill near C NW PSL Section 20, Block A-7.

Workover operations are due for Seaboard Oil Corporation's Munger-Nix 1, C NE PSL Section 1, Block A-41, Andrews County discovery last year, following the assignment of 160-acre site and lease equipment to J. W. Tripplehorn et al. The former will be carried for 1/16 over-riding royalty. The well showed for a small pumper after multiple acid treatment at 4526 feet. It is 3¾ miles southwest of the Deep Rock-Ogden field.

Sinclair Prairie Oil Company et al have contracted for a second Ordovician test to be drilled on their J. B. Tubb 560-acre unitized tract, offsetting deep production in the Sand Hills field, Crane County. Tubb-Unit 3 has been located in southwest corner of PSL Section 3, Block B-27. The unit group's Tubb-Unit 2, NW NW SW Section 3, was a failure at 6391 feet.

Exploration of the widely scattered producing area added to the northwest portion of the Church & Fields field, Crane County, the past year is assuming important proportions. Currently there are 8 operations, and one test on the border of the old area. Lease expirations are forcing the development, and participants are hopeful of finding flush production. Earlier completions have been small wells, with the majority marginal pumpers.

More drilling is in store for the Keystone structure, Winkler County, following extensions to the north and south. Standard Oil Company of Texas' Baird 1, NEc PSL Section 13, Block B-3, extended the Colby sand zone two locations south with an initial flow of 230 barrels after 300-quart nitro shot at 3300-72 feet. Three offsets are to follow. Sid W. Richardson et al's Keystone-Sun 1, SEc PSL Section 4, Block 77, one mile north of the lime area, flowed 174 barrels of 37-gravity oil initial after nitro shot. The hole was plugged back from 3547 to 3492 feet, although no water was encountered. An effort is being made to classify the area as a new pool for proration purposes. Gulf Oil Corporation's Keystone 30, surrounded by producers in the older section of the field, tested mostly water in drilling to 3555 feet.

WEST TEXAS COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Andrews:					
Means	2	2	0	0	9,050
Fuhrman	1	1	0	0	4,455
Crane:					
Church & Fields	1	1	0	0	3,298
Ector:					
Foster	4	4	0	0	16,805
Goldsmith	2	2	0	0	8,391
North Cowden	3	3	0	0	12,977
Gaines:					
Seminole	1	1	0	0	5,224
Howard	1	1	0	0	2,864
Jones	3	2	0	1	6,669
Pecos:					
Wildcat	1	0	0	1	2,500
Scurry	1	1	0	0	2,453
Upton:					
Gulf-McElroy	1	1	0	0	2,991
Ward	4	4	0	0	9,347
Winkler:					
Henderson	1	0	0	1	3,150
Kermit	3	3	0	0	9,800
Keystone	1	1	0	0	3,547
Scarborough	1	1	0	0	2,970
Yoakum:					
Wasson	2	2	0	0	10,282
Total	33	30	0	3	116,773

Texas drilling permits

The Texas Railroad Commission last week approved permits for drilling 306 new wells in Texas, 77 more than were allowed the week before.

Two locations were approved in the East Texas field in Gregg County, while East Central Texas operators reported nine locations.

The commission approved 59 permits in the West Texas district, including 18 in Ector and 13 in Pecos County. From the West Central Texas area 21 locations were reported.

Operators in the Gulf Coast area were allowed 74 permits with 24 in Nueces, and 11 in San Patricio County. Southwest Texas operators reported 29 locations, including 10 in Duval County.

There were 85 permits listed from North Texas, 28 in Young County, 20 in Archer, and 19 in Wichita County, representing an accumulation of several weeks. The commission approved 27 permits in the Panhandle area, including 10 in Yoakum County.

Amerada sells properties in Texas Panhandle

Pampa, Texas.—Amerada Petroleum Corporation has withdrawn from the Texas Panhandle as an active unit through the sale of its 3 Whittenburg leases, aggregating 628 acres with 10 pumpers, to Harry Stekoll et al for $100,000 cash. The properties are in the Dial sector of Hutchinson County, and the above wells, which have a base allowable of 130 barrels daily, were completed in 1926.

Riverside hearing

A hearing on the new Riverside field, Nueces and San Patricio counties, has been scheduled for February 4 at Austin by the Texas Railroad Commission. Rules for operating in the new area will be considered.

The Seaboard Oil Company has recently completed its Ella C. Wilson 2 in the V. L. Herrera grant, the notice said.

North Texas Fields

Lack of outlet delays offsets in Montague County areas. Young County semi-wildcat flows 10 barrels oil per hour.

Wichita Falls, Texas.—The two oil strikes registered by Montague County this month have not attracted the follow-up development that normally occurs. Both areas are seeking pipe line connections. Owners of close-in acreage may defer drilling until a crude market can be assured.

Joe Benton and J. W. Holmes' Bowers 1, SEc Section 55, MEP&P Survey, 3 miles northeast of Bonita, was swabbing and flowing 15 barrels of high-gravity oil hourly from broken sandy lime at 2887-98 feet. Additional tankage is being erected to continue the production test. Rogers Bros. and others' Burnett 1, which opened a Lower Strawn pool one mile west of Nocona early in January at 4645-56 feet, has been shut in part time since its completion. The latest gauge credited the well with flowing 167 barrels of 43-gravity oil in 5½ hours through ½-inch choke.

Another failure for the Whitesboro area, western Grayson County, was credited to Denver Producing & Refining Company, which has drilled 5 tests on its 5000-acre block within the past two years. Cannon 3, southeast offset to its original prospect that showed for a small pumper at 2395 feet before deepening to 5000 feet, missed the projected pay zone and halted operations at 2414 feet.

Walter Gant et al's Worsham 7, offsetting Strawn production in the Worsham pool, Clay County, developed hole full of oil from sand at 3935-48 feet. The well is expected to flow when tubing is installed.

R. R. Brader and Groves' J. L. Clark 1, semi-wildcat in southern Young County, flowed 10 barrels of oil hourly after 10-quart nitro shot in sand at 3850-65 feet, with the hole bottomed in shale at 3875 feet. It is located in Section 2, EL Ry Survey, A-1307, four miles west by north of Graham.

NORTH TEXAS COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Archer:					
K-M-A	1	1	0	0	3,855
Miscellaneous	2	0	0	2	1,988
Wildcats	3	1	0	2	3,725
Clay	2	2	0	0	2,333
Cooke	1	1	0	0	1,350
Jack	2	2	0	0	783
Wichita:					
Jackson-Canyon	2	2	0	0	5,284
K-M-A	5	5	0	0	19,269
Miscellaneous	1	0	0	1	1,018
Young:					
Miscellaneous	3	1	0	2	2,382
Wildcat	1	0	0	1	1,166
Total	23	15	0	8	43,153

TEXAS PANHANDLE COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Carson	1	1	0	0	3,060
Gray	1	1	0	0	2,956
Hutchinson	2	2	0	0	6,395
Total	4	4	0	0	12,411

Eight new operations were assigned the K-M-A deep area the past week. The current field report lists 6 tests drilling above the Strawn zone, and 20 wells in process of completion or awaiting proration gauge. Continental Oil Company is utilizing residue gas from its natural gasoline plant to produce oil from its wells that fail to flow. The company's Kempner 3-B, Block 18, near southwest edge of the field, gauged 14 barrels hourly on potential tests, using flow valves and input gas at 300 pounds pressure. The well failed to flow after 80-quart nitro shot in broken pay at 3816-58 feet.

North Texas field gets 20-acre spacing order

Twenty-acre spacing for wells in the Collinsville field, Grayson County, was provided in an order issued by the Texas Railroad Commission on January 25. However, operators may drill within 330 feet of lease lines or no

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further than 660 feet from the nearest well.

The regulations provide for 100 feet of surface casing cemented to the surface and an oil string cemented at least 600 feet above the shoe.

Potentials shall be taken for 24 hours through a positive choke ¼ by 6 inches long. On pumping wells the test shall be made at the rate of 20 strokes per minute. A maximum gas/oil ratio of 2000/1 was ordered.

Proration is on acreage and per well with 50 percent allocated on each factor. Twenty acres may be assigned to one well but no provisions for a tolerance is made.

Suggest 40-acre spacing for Archer County area

Louis Sikes has requested 40-acre spacing for wells located around his discovery on the H. Ford tract in the T. C. Cecil Survey, Archer County. Other operators present at a hearing before the commission last week favored 20-acre spacing.

Sikes pointed out that production is from 4437 feet and that drilling operations are much more difficult here than at K-M-A. For that reason the cost of wells is materially higher, and Sikes estimated they would run about $35,000, even after some experience had been obtained. The other operators, however, thought $20,000 would cover the cost.

J. S. Hudnall, geologist of Tyler, expressed the opinion that one well to 20 acres is necessary if the oil is to be obtained. He pointed out that there is relatively little gas and that the water drive is not strong.

Mission.—Showing salt water and mud when swabbed from perforations between 3935-68 feet, where 36 shots had been made, D. D. Oil Company's Dallas Joint Stock Land Bank 1, 2 miles north of the Rincon field, Starr County, recemented. The test will perforate at 4180-86 feet where a completion will be attempted in a Vicksburg oil sand.

East Texas Fields

Expected drilling slump in big field has not materialized. Pressure drop during month neutralizes previous gain.

Kilgore, Texas. — The East Texas field has failed to record the slump in drilling that was anticipated during the fore part of the year. The drilling of inside locations this month has exceeded the volume reported in December, and the number of applications for well permits on file forecast a continuation of development.

Field work picked up during the last two months in 1938 after reaching a seasonal low mark in October. This was believed to be due primarily to operators seeking additional "write offs" on taxes. Curtailment of work was expected to follow because of the enforcement of 5-day production week and reduced price posting. Currently the field has 26 rigs in service, with a total of 54 operations. On the two previous weekly checks there were 32 drilling tests.

The bulk of the drilling is on leases considered the most favorably situated regarding sand thickness and isolation from the water table, thereby assuring a profit on the wells. Magnolia Petroleum Company has added two flowing wells on its A. T. Tyiska lease, near the west edge of the Joiner area, Smith County, after nominal penetration of the sand. Tyiska 15 flowed 12 barrels of oil in 15 minutes from 1 foot of pay topped at 3817 feet.

Tide Water Associated Oil Company has completed an input well on its Tom Bell producing lease, Gregg County portion of the Kilgore area, and will use same in disposing of salt water. Bell 18, located 227 feet southwest of a producer bottomed at 3680 feet, logged oil sand at 3685-87 feet followed by water sand to 3801 feet. The water was found at 3298 feet sub sea by the new test, which has cemented 7-inch at 3716 feet, and 2½-inch tubing at 2000 feet.

East Texas pressure falls 2.93 pounds in month

Kilgore, Texas. — The average reservoir pressure of the East Texas field declined 2.93 pounds during the month ending January 8, thereby virtually wiping out the nominal gains reported by the Texas Railroad Commission's engineers on the two previous monthly readings. The January survey of 91 key wells placed the average pressure at 1106.78 pounds, corrected to 3300 feet sub sea, or a fraction of a pound above the lowest recorded reading.

The low mark in reservoir pressure was recorded on the October 8, 1938, monthly survey when 91 key wells averaged 1106.7 pounds. Three consecutive monthly declines, aggregating 18.75 pounds, preceded this all-time low figure. The pressure was credited with an increase of 1.51 pounds on November 8 and 1.5 pounds on December 8. The decline for the 12-month period ending January 8 amounted to 13.2 pounds.

Enforcement of the 5-day production week in the East Texas field, with no exceptions granted for water wells and air-gas lift units, is given credit for preventing a greater decline of the bottom hole pressure curve. Four holidays were observed during the last two months in 1937, and 71 during 1938.

The commission's report estimated the pressure decline during the month ending January 8 at .244 pounds per 1,000,000 barrels of crude production.

EAST TEXAS FIELD COMPLETIONS

Area	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Joiner	9	9	0	0	33,457
Kilgore	9	8	0	1	32,760
Longview	5	5	0	0	17,809
Total	23	22	0	1	84,026

EASTERN TEXAS COMPLETIONS (Outside East Texas Field)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Angelina:					
Wildcat	1	0	0	1	2,614
Anderson:					
Cayuga	1	0	1	0	7,614
Total	2	0	1	1	9,228

EAST TEXAS BORDER COUNTIES COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Marion:					
Rodessa-Jefferson	5	4	1	0	30,342
Panola:					
Wildcat	1	0	0	1	2,350
Total	6	4	1	1	32,692

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HOUSTON, TEXAS

Fourth gas-distillate producer at Cayuga

Tyler, Texas.—Barnsdall Oil Company's Tubbs 2, fourth deep producer for the Cayuga field, Anderson County, tested 1,580,000 feet of gas and 10 barrels of 57.4-gravity distillate daily through ¼-inch choke after reacidizing with 6000 gallons. Production is from lower Glen Rose at 7524-7614 feet. It previously was treated with 3000 gallons of acid. The gas will be stripped of its distillate then utilized for repressuring Woodbine production.

Electrical formation survey used by Tide Water Associated Oil Company et al before running casing to complete McGee 1, mile and quarter northwest outpost for the Opelika two-well pool, Henderson County, indicated that the porous section logged in Coquina lime at 8136-67 feet will likely yield gas and distillate. Seven-inch pipe was cemented at 8212 feet, or 4 feet off bottom, and will be perforated for completion.

Walter Gant et al's Vol De Long 1, Limestone County wildcat and 1½ mile northwest of Thelma, logged top of Woodbine series at 2765 feet. No shows were recorded in coring to 2860 feet.

Lone Star Gas Company's Duncan 1, northwest outpost for the Buffalo field, Leon County, cored gas sand at 5640-75 feet. Sand at 5700-06 feet registered oil stain, and water was encountered at 5728-78 feet. Pipe has been landed to perforate opposite the above shows.

San Augustine County test has trouble after blowout

Shreveport.—Due to condition of the hole, Superior Oil Corporation's and Houston Oil Company's Long-Bell 1, S.P.R.R. Survey 5, San Augustine County, Texas, seven miles from San Augustine, may be abandoned at 5727 feet at which depth the test tried to blow out.

Three-fourths of a mile south of the Joaquin, Shelby County's first oil well, which was 1000 feet south of the nearest of three Glen Rose gas-distillate producers, W. H. Neill and associates made location for Earl McDaniel 1, (10-acre tract), W. S. Childers Survey.

One mile north of Tom Bell and Vestal's Moseley 1, D. Lane Survey, Marion County, which is testing with some oil showing in the Tokio at 2575 feet, Earl E. Fisher and Chatten Coward cleared location and moved in material for a shallow wildcat test, Susie A. Chatten 1, I. N. Jones Survey. Check location is 830 feet north of south line and 330 feet east of west line lot 5840 acre tract.

Grant more time for gas experiment at Hamman

Hamman Exploration Company has requested additional time for experimental work in recycling gas to the 9200-foot sand in the Hamman field, Matagorda County. This request was made last week at a hearing before the Texas Railroad Commission and was not protested.

The hearing was of unusual importance, because it was the first effort to obtain an exception under the condensate order which the commission had issued on January 18. This order provides that those wells producing with a ratio in excess of 100,000/1 are gas wells even though a water-white fluid, usually termed "condensate," is produced along with the gas.

Testimony of John Hamman, Jr., indicated that about five wells had been affected by the commission order and that these are producing a fluid of 55-gravity which the commission found is in a gas phase in the reservoir. The company plans to provide a recycling plant and strip the production from the 9200-foot level and return the residue gas to the same sand.

Additional time was needed, Hamman explained, to complete experiments and some of the materials have already been ordered from an engineering concern.

Gas lift subject of chapter meeting in East Texas

"Gas Lift as a Production Method in the East Texas Field" is the subject selected for discussion at a regular meeting of the East Texas Chapter of the American Petroleum Institute Division of Production to be held in the high school auditorium at Kilgore, Tuesday, February 7, at 8 p.m.

Principal speaker will be W. N. Rees, district foreman for The Atlantic Refining Company in the East Texas field, who has had wide experience with gas lift in the area and at this time has more than 100 wells using this method under his supervision. He is well qualified to discuss the subject from the standpoint of installation cost, opera-

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tion cost and problems of application of gas lift to individual well conditions in this field. His talk is to be followed by a round-table discussion.

R. D. Risser, chairman of the chapter, calls attention to the fact that at the last meeting in December the attendance was 675 and attendance at the dinner of 170 taxed hotel facilities to the exclusion of 50 men who desired to participate. This time the dinner will precede the meeting as formerly, and it has been suggested that those desiring to attend act promptly in securing tickets from the secretary, W. S. Morris, at Kilgore.

Engineering program features deep well drilling

Deep well drilling is to be discussed in two papers before The American Society of Mechanical Engineers and the Louisiana Engineering Society meeting jointly at New Orleans on February 23, 24 and 25. "Mechanics of Deep Oil Well Operations" will be presented by S. B. Sargent of Sargent Engineering Corporation, Huntington Park, California, and "Design and Construction of High-Pressure Equipment Used for the Completion of Deep Wells" by Herbert Allen of Cameron Iron Works, Houston.

The preliminary program for the meeting lists a wide variety of general engineering subjects with emphasis on industries of the South, and includes sections on boiler feedwater, management, waste fuel, power, process and fuels.

Headquarters for the meetings will be at the St. Charles hotel and the dates immediately follow Mardi Gras, so that engineers are given the opportunity of combining attendance at this famous celebration with the technical exercises. In addition, the convention program includes entertainment features both for the engineers and their ladies.

Panhandle gas allowance increased by commission

The Texas Railroad Commission has revised its gas allowance for wells in the Panhandle, increasing to 775,000 cubic feet daily for oil producers. The order became effective January 14.

Under an order issued November 25, 1938, the commission had cut the allowance back to 500,000 cubic feet per day, but producers protested that this practice was injurious to small wells in the field.

Want more gas ratio in Benavides field

Circle Oil Company and Glenn McCarthy have asked for an increase in the gas/oil ratio allowance for wells producing from the Teddlie sand in the Benavides field, Duval County. The request was made last week at a hearing before the Texas Railroad Commission and no protest was offered by the other operators.

The field rules now provide for a maximum allowance of 2000/1, but J. Ed Hill, geologist, told the commission that ratios of 8025/1 had been recorded and that he feared a maximum ratio of 10,000/1 would be necessary if the wells are to produce the full allowable of 29 barrels.

Southwest Texas Fields

Riverside becomes Nueces County's fifteenth field. White Point and East White Point pools linked.

Corpus Christi. — Riverside was proved as Nueces County's fifteenth oil producing area January 27, when Seaboard Oil Corporation of Delaware's Ellen C. Wilson 2 was cleaning from perforations at 4994-97½ feet in the Frio zone. The well extended production 4650 feet to the west and opened oil possibilities for this structure.

The test cored a series of broken sand from 49 feet to 4998 feet, then went into shale section to 5037 feet. A string of 9⅝-inch casing was landed on bottom and production is being obtained through perforations. The well may be carried deeper in the event the gas volume is great.

Offsetting the test on the north, Hewitt and Dougherty are rigging up Heep Oil Corporation et al and Republic Natural Gas Company each have outposts to the south, and O. W. Killam is preparing to drill farther southwest. Henshaw Brothers are rigging up for a test 4200 feet west of the producer. A lease buying campaign and farm-out trading program to the north and northwest into San Patricio County are expected to bring about additional development immediately. This would quickly determine the possibilities of the field.

It has been indicated that this area has a steep west dip and that it may prove a structure of major importance. Some are predicting it to be another Saxet field with a multiplicity of sands. Should this be the case, a heavy development campaign on a well split up block is likely. The acreage situation is of such a nature that offsets will spread like wildfire should the field prove of the indicated importance.

Link White Points

In the meantime, Homer Easterwood and J. B. Cage tied the old White Point Gas field and the East White Point field together with Mrs. Kate L. Dunn 1. The well, located in the M. Flores Survey, Abstract 127, cored the Plymouth sand at 5672-76 feet and on drill stem test recovered 860 feet of oily mud, 20 percent of which was oil, and showed 12 pounds working pressure in 5 minutes. The tool slipped during the test, preventing a better recovery. Casing has been set and completion will be effected early in the week. The well is 9000 feet west of the present Plymouth Oil Company production, constituting the East White Point field, San Patricio County.

La Gloria First for 1939

Shell Petroleum Corporation placed the first Lower Gulf Coast field of 1939 on production when it completed Von Blucher 1, east of La Gloria at 7555-60 feet. The test flowed a large volume of gas and sprayed about 1 barrel of distillate per hour through choke. While open, it showed a tubing pressure of 3000 pounds, which mounted to 3500 pounds when closed in. Tubing was set on packer, hence no casing pressure. Production apparently is from the Vicksburg.

Southwest of this well, Magnolia Petroleum Company's Maun 1 was coring below 6800 feet.

East Alice field, also in Jim Wells County, was extended nearly ½-mile northeast with Henshaw Brothers' Thigpen 1. The well logged sand 5164-5219 feet, showing oil and gas. It was coring for the 5300-foot zone late in the week. This test logged the sand about flat with the field, indicating that the field will be further expanded to the northeast.

Humble Oil & Refining Company

SOUTH TEXAS COMPLETIONS
SAN ANTONIO DISTRICT

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Bastrop County:					
Yost	1	0	0	1	1,575
North Dale	1	0	0	1	2,965
Blanco County:					
Wildcat	1	0	0	1	555
Caldwell County:					
Branyon	1	0	0	1	2,010
West Dale	1	1	0	0	2,677
Guadalupe County:					
Wildcats	1	0	0	1	1,800
Kendall County:					
Wildcats	1	0	0	1	995
Travis County—					
Kimbro	1	1	0	0	672
Wildcat	1	0	0	1	835
Total	9	2	0	7	14,084

CORPUS CHRISTI DISTRICT

Calhoun County					
Wildcats	1	0	0	1	10,015
Goliad County:					
Weser	1	0	1	0	5,313
Hidalgo County:					
Samfordyce	3	3	0	0	8,747
Jackson County:					
Cordele	1	1	0	0	2,707
Jim Wells County:					
Alice	2	2	0	0	11,036
East Alice	2	2	0	0	10,726
Live Oak County:					
Wildcats	3	0	0	3	6,663
Ezzell	1	0	0	1	1,445
Nueces County:					
Wildcats	1	0	0	1	6,527
Agua Dulce	1	0	*1	0	6,390
Clara Driscoll	2	1	1	0	11,226
Turkey Creek	1	1	0	0	4,064
Luby	3	3	0	0	13,787
Saxet	3	3	0	0	19,168
Refugio County:					
Tomoconnor	2	2	0	0	11,846
San Patricio County:					
McCampbell	5	5	0	0	35,771
Plymouth	2	2	0	0	12,492
Victoria County:					
Heyser	3	3	0	0	16,473
Keeran	1	0	1	0	8,174
McFaddin	1	1	0	0	4,400
Total	39	29	4	6	206,970

LAREDO DISTRICT

Duval County:					
Fitzsimmons	1	1	0	0	4,387
Loma Vista	1	0	0	1	3,190
Lundell	1	1	0	0	1,544
Eagle Hill	1	1	0	0	1,458
Piedra Lumbre	1	1	0	0	2,072
Rancho Solo	2	1	0	1	3,776
Casa Blanca	2	2	0	0	2,395
Hoffman	3	3	0	0	8,208
Wildcats	1	0	0	1	5,513
McMullen County:					
Munson	2	2	0	0	2,423
Ezzell	2	2	0	0	2,955
Webb County:					
N. Killam	2	1	0	1	4,145
Zapata County:					
Mirando Valley	3	2	0	1	5,521
Comitas	1	1	0	0	1,150
Escobas	1	1	0	0	1,344
Charco Redondo	1	0	0	1	375
Total	25	19	0	6	50,456

will drill its first well on the large King Ranch block purchased several years ago. The test will be Kenedy Ranch 1, Kenedy County, located approximately 23,600 feet from the west line and 37,000 feet from the south line of the El Penascal Grant, 22½ miles east of Sarita and on a 144,316-acre tract.

Union Extends Keeran

Union Oil Company of California materially extended the 7000-foot sand of the Keeran field, Victoria County, to the southeast with Keeran 2, northwest corner of the 5000-acre lease. The well flowed 850 barrels per day through ⅜-inch choke after casing had been perforated in the sand section logged 6998-7018 feet. In the same field, Gulf Oil Corporation's Keeran 14, southwest offset to the Barnsdall Oil Company's discovery well of the sand, drilled to 8174 feet, but plugged back to perforate at 4802-7 feet. It made a gasser with 1300 pounds rock pressure. This is the first completion in the field in this zone.

Jackson County's West Ranch field was widened another ¼-mile to the west with Magnolia Petroleum Company's A-7 West. The well cored sand 5078-97 feet, but was carried to 5113 feet and is in process of completion.

Hiawatha Oil & Gas Company's second deep test in the Seadrift area of Calhoun County was abandoned when Roemer Estate 2 was quit at 10,015 feet. It showed a little oil in a sand section at 7815-90 feet, but it was insufficient to make a commercial producer.

Testing Edwards lime on Big Foot prospect

San Antonio.—Coring 62 feet of Edwards limestone and not showing any water, Hickok and Reynolds are running another drill stem test in San Antonio Joint Stock Land Bank 1, on the Big Foot prospect in northeastern Frio County. The well topped the formation at 3493 feet. It was drilled to 3555 feet, showing a soft streak of limestone. Recovery has been poor, but what lime has been recovered showed a slight stain of oil.

The test is in Survey No. 54 and is 6 miles north of the Shattel field, where the Humble Oil & Refining Company drilled three Edwards limestone wells without obtaining production. The company has plugged Schley 1, classified as the Shattel discovery, after its production fell to several barrels per day from Austin chalk at 4800 feet. The company, however, is paying rentals on acreage in the area which would indicate that it plans further exploration.

Two wildcats indicating new Mirando area pools

San Diego.—Completion efforts were still underway in two shallow Mirando district wildcats, each indicating new oil pools.

Alvin Brauer, R. P. Holland and E. H. Smith's Bonham 1 was swabbing and showing some oil from the Government Wells sand at 1390-97 feet. It is in Tract 3009, Section 59, one mile southeast of the Ezzell field, Live Oak County. The test is down dip from the Ezzell production and on an entirely separate structure.

In northwestern Duval County, Texas Inland Oil & Gas Company's Adami 1 was trying to complete a fishing job. When efforts were made to bail the well, the bailer caught in the hole. Casing parted and the fishing job resulted. It is expected that the hole will be cleared and the well ready for production within a day or so. It is in the Mirando sand at 1289-97 feet.

M. M. Miller and Sons' Fee 1-A, in the Longhorn field, Duval County, is being finished in the 4000-foot sand to commence a twin well drilling campaign. Several wells cored the sand, but Fee 1-A is the first to produce from it.

Permit issued for gas injection at Agua Dulce

The Texas Railroad Commission has issued an order allowing Process Oil Company to repressure the 4800-foot sand in the Agua Dulce field, Nueces County.

The company stated at a recent hearing that it planned to produce gas from the deeper horizon and agreed not to repressure the 4800-foot sand above virgin pressures.

The Texas Railroad Commission has issued a permit allowing the American Liberty Oil Company to recycle gas in the Grapeland field, Houston County.

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Texas Gulf Coast

Echo wildcat indicates it will produce heavy oil.

Cook Mountain sand near Esperson field productive.

Houston. — Echo, north of Orange, Orange County, indicated it would produce oil last week when Sun Oil Company made a test on Lutcher Moore 1-A, B. Johnson Survey, in Oligocene sands at 8985 to 9010 feet when casing was perforated with 30 shots. The well came in flowing oil, washwater and gas through a ⅛-inch choke with a tubing pressure of 2300 pounds. Later in the week it started making salt water and the operators have decided to let the wildcat flow several days before it is killed and reworked. The well was flowing a low gravity oil with a large percentage of paraffin. Lutcher Moore 1-A is bottomed at 9664 feet in a side-tracked hole. It was plugged back to 9020 feet before the test was made.

New Esperson Sand

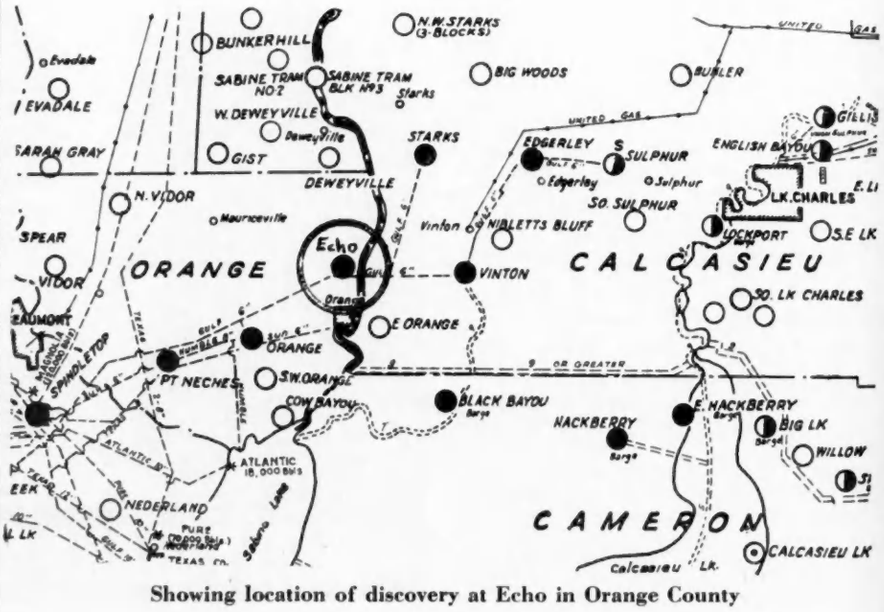
General Crude Oil Company discovered a new producing sand 1½ miles southeast of production at Esperson field, Liberty County, last week when Esperson Fee 1-B came in flowing 275 barrels of 40-gravity oil daily through a 9/32-inch choke from Cook Mountain formation at 7341 feet. Tubing pressure was 840 pounds and casing pressure was 1400 pounds. The extension well was drilled to 7341 feet and 5¾-inch casing was set and perforated with 150 shots from 7305 to 7335 feet.

A new producing sand was discovered at Clam Lake field last week by Shell Petroleum Corporation: State 1, W. H. P. McFadden Survey, drilled to 6176 feet and then set five-inch casing in Miocene sands at 2416 feet. The casing was perforated with 20 holes from 2387 to 2397 feet and on a two-hour gauge the well flowed 14.39 barrels of 19.6-gravity oil through a quarter-inch choke. Tubing pressure was 100 pounds and casing pressure was 450 pounds. This makes the third producing horizon for the field, one at 2387 feet, one at 3845 feet, and one at 5913 feet. All of the sands are in Miocene formation.

Northeast of the discovery well at League City, Galveston County, Phillips Petroleum Company's Patton 1 was drilling in sandy shale at 10,551 feet at the end of the week. The well is below the regular producing sand. The same operator's Ott 1 was drilling in sandy shale at 9149 feet after coring broken formation showing salt water from 9110 to 9140 feet. The well cored a broken sand from 9088 to 9110 feet with an odor of oil. A sand which showed 13 percent saturation was cored at 8683 to 8702 feet. The same company's Stewart Title Company 1 was

TEXAS GULF COAST COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Anahuac	3	3	0	0	21,922
Bammel	1	0	0	1	7,006
Clear Lake	3	0	1	2	17,937
Dickinson	3	2	0	1	27,017
Eureka	3	2	1	0	23,956
Fairbanks	11	11	0	0	75,339
Friendswood	4	4	0	0	14,171
Hastings	3	2	0	1	18,326
Hardin	5	5	0	0	38,475
Labelle	1	1	0	0	8,795
Magnet	1	1	0	0	5,541
Manvel	1	1	0	0	5,969
Orange	2	2	0	0	11,178
Pickett Ridge	2	2	0	0	9,396
Segno	3	3	0	0	21,471
Seabreeze	3	1	2	0	25,550
Thompsons	3	1	0	2	10,533
Tomball	1	0	1	0	5,554
S. Cotton Lake	1	1	0	0	6,485
Withers	2	1	1	0	11,159
Wildcats—					
Austin	1	0	0	1	4,975
Total	57	43	6	8	370,755



Showing location of discovery at Echo in Orange County

drilling in shale at 9070 feet with no shows of oil. A broken formation with a show was cored from 9035 to 9054 feet.

In the Garwood area, Colorado County, Coyle-Concord Oil Company is preparing to make a test on O. M. Powell 4-B, I&GN No. 45. Casing is being perforated from 5922 to 5925 feet after casing was perforated and squeezed with cement from 5925 to 5933 feet. While drilling to the bottom at 6158 feet a drill-stem test made around 5922 feet, showed 150 feet of oil and a 500-pound pressure.

Two new locations were announced at Cheek, Geo. H. Echols made location for Beaumont Launch Club 1, 466 feet east of the west line and south of the north line of a 64-acre tract in the C. Hildebrand Survey, Abstract 28. It is an east offset to Shell Petroleum Corporation's Pleasant 1. Humble Oil & Refining Company made location for Broussard Trust 1, 466 feet south of the north line of a 666-acre tract, being the south line of Nona Mills 2164-acre tract and midway between the east line of the survey and Hildebrand Bayou in C. Hildebrand Survey, Abstract 28.

Humble Oil & Refining Company abandoned two tests at Clear Lake field, Harris County, last week. Fee 2-A topped salt water sand at 6020 feet and was abandoned at 6070 feet. West Fee C-4 was abandoned at 6042 feet in salt water sand, topped at 5995 feet. Stanolind Oil & Gas Company's Sowden 1 flowed 2,635,000 cubic feet of gas daily through a quarter-inch choke with a tubing pressure of 950 pounds and a casing pressure of 1000 pounds. The well was perforated with 30 shots from 5815 to 5825 feet.

North of Sheppard in San Jacinto County, Jack Frazier made location for Annie J. Smith 1, 466 feet out of the southwest corner of a 500-acre tract in J. D. Martinez Survey. It is proposed to drill the well to 7500 feet or deeper. Several wildcats have been drilled in this area, but none to 7500 feet. The well probably will be drilled to the Sparta or Wilcox formation.

In the Moss Bluff area, Liberty County, Crown Central Petroleum Corporation has made location for W. W. Kyle 1, 3000 feet from the east line and midway between the north and south line of a 274.3-acre tract in the James McFadden Survey.

In Matagorda County, Sun Oil Company's M. O. Cavallin 1, J. Duncan Survey, is running a string of 9⅝-inch protection casing to 8502 feet. Operators will start coring for the 9248-foot producing horizon which is found at Palacious field, Matagorda County.

In the Rockland area, Tyler County, J. C. Bonham made location for Southwestern Lumber Company 1, 200 feet south of the Neches river and 435 feet west of the east line of a 47-acre tract in the B. Enloe Survey, Abstract 29.

Sun Oil Company has completed its first well at Old Ocean field, Brazoria County. Campbell 1, east side of the field, C. Breen Survey, was perforated from 10,052 to 10,085 feet and it came in flowing 144 barrels of 38 gravity oil in seven hours through a 14/64-inch choke. Tubing pressure was 1500 pounds and casing was sealed. The oil was showing .1 percent basic sediment and water. Harrison & Abercrombie have been the only operators at Old Ocean. Sun Oil Company is the second operator to enter the field.

South Louisiana

Potash area becomes second field of year for area. South Roanoke field gets new sand at 10,120 feet.

Lake Charles.—The second oil field in South Louisiana in 1939 was discovered January 24, when Humble Oil & Refining Company brought in Orleans Levee Board 37, Potash area, Section 13-18s-15e, Plaquemines Parish, for 23 barrels of 28.2-gravity oil per hour through a quarter-inch choke from Miocene sands at 8070 feet. Broken sands showing oil were cored from 8060 to 8070 feet and seven-inch casing was set. Screen and liner were set prior to completion. Tubing pressure on the discovery well was 950 pounds and casing was sealed.

Potash has produced a very small amount of oil, none in commercial quantities, from 689 feet. Orleans Levee Board 37 was drilled on the flank of the dome and is considered as the discovery well.

Potash had been worked by refraction by Gulf Refining Company and by Humble Oil & Refining Company in 1929. In 1937, Humble and Texas Gulf Sulphur Company core drilled the area. Humble's Orleans Levee Board 11, came in for 25 barrels of 16-gravity oil daily on September 27, 1937, from Miocene sands at 689 to 695 feet. After the shallow producer, the company drilled several deep holes on the flank, the deepest being Orleans Levee Board 36 which went to 10,025 feet in September, 1938, and was abandoned. This well had several shows of oil around 9721 feet.

Potential for Eola

At Eola, Avoyelles Parish, where Sid Richardson discovered a new field and a new producing formation for the Louisiana Gulf Coast, the operator is preparing to take an official potential test on the well. Standard Oil Company of Louisiana is laying a line to the field and will take the oil to the company's refinery at Baton Rouge. The discovery well came in flowing an estimated 275 barrels daily through a ⅛-inch choke from Wilcox sands at 8550 feet.

SOUTH LOUISIANA COMPLETIONS

Field or Parish	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Chalkley	1	0	0	1	8,734
Charenton	3	2	0	1	4,400
Starks	1	0	0	1	1,929
Sulphur	2	1	1	0	6,948
Villa Platte	1	1	0	0	8,988
West Gueydan	1	0	0	1	7,720
Total	9	4	1	4	38,719

A new oil sand was discovered at South Roanoke field, Jefferson Davis Parish, last week by Union Sulphur Company. The operator's T. R. S. Farms 1, Section 23-10s-4w, was completed after casing was perforated with 38 shots from 10,108 to 10,120 feet. It came in flowing 160 barrels of 54.2-gravity pipe line oil daily through a 15/64-inch choke. T. R. S. Farms 2 was drilled to 10,177 feet and five-inch casing was set at that depth. The field is now producing from 8460 feet, 8540 feet and 9865 feet. Continental Oil Company recently completed a well in the 9865-foot horizon.

At Woodlawn, Jefferson Davis Parish, Union Sulphur Company's A. H. Thomas 1, is taking side wall cores after drilling to 9550 feet. The well is below the producing horizon.

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pleted another well in the Cockfield formation at Bancroft field, Beauregard Parish, last week when Columbia Land & Timber Company 5 came in flowing 276 barrels per day through a 3/16-inch choke with a tubing pressure of 2000 pounds and a casing pressure of 1700 pounds. The well was completed at 7340 feet in oil sand after casing had been set at 7315 feet. The operator's Columbia Land & Timber Company 4 is waiting on cement at 7290 feet.

At Horseshoe Bayou, St. Mary Parish, The Texas Company was washing to bottom in State 2 at 12,770 feet at the close of the week. Upon reaching 12,770 feet some time ago the operators lost returns and heavy drilling mud was pumped into the hole.

At West Lake Verrett, St. Martin Parish, Shell Petroleum Corporation's Jeanerette Lumber Company 2 was drilling in sandy shale at 8037 feet. It missed the producing sand found in the discovery well around 8020 feet.

Atlantic Refining Company has completed its third well at North Tepetate, Acadia Parish. Klumpp 3 came in flowing 185 barrels of high gravity oil daily through a quarter-inch choke after casing was perforated with 24 shots from 8470 to 8475 feet. The hole was drilled to 8700 feet.

Humble Oil & Refining Company has completed Habetz 3 at North Crowley field in the Oligocene sand. It flowed 33 barrels of 35-gravity oil per hour through a quarter-inch choke with a tubing pressure of 1100 pounds. Casing was sealed. The well was perforated from 8198 to 8203 feet.

North Louisiana Fields

Field activity at lowest ebb obtaining in many months. Second deep test at Shongaloo showing oil on ditch.

Shreveport.—Activity in North Louisiana was at one of its lowest ebbs in several months during the last week. Neither the Cotton Valley nor Shreveport fields added a new well, and the latter, for the first week in some time, had only one new location.

On the southwest flank of the deep Cotton Valley field, Webster Parish, Oliphant Oil Company's testing of E. L. Stewart B-2, C NW NW 4-20n-10w, at 9198 feet in the "F" or Davis horizon topped at 8930 feet, was delayed by stuck tubing. Woodley Petroleum Company's J. O. Couch 1, C NW SW 36-21n-10w, on the southeast flank where oil is found in the "E" or Bodcaw horizon, cored in the Bodcaw in hard sand at 8560 feet after topping the Bodcaw at 8544 feet. Oliphant Oil Company's Gray-Stephens 1, C SE SW 35-21n-10w, is waiting on cement to set on seven-inch casing at 8577 feet, total depth 8600 feet, through the Bodcaw horizon.

Magnolia Petroleum Company's H. M. Branton 4, C NE 6-22n-9w, second deep test at Shongaloo, Webster Parish, was showing considerable oil on the pits last week as it drilled at 8881 feet in hard sand. Origin of the oil showing was not identified as there is considerable open hole. The deep discovery well at Shongaloo in Section 32-23n-9w, is producing gas-distillate at 8990-9010 feet.

NORTH LOUISIANA COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Caddo:					
Pine Island	2	1	0	1	2,620
Grant:					
Urania	2	2	0	0	3,145
Madison:					
Wildcat	1	0	0	1	3,703
Sabine:					
Zwolle	1	1	0	0	2,582
Total	6	4	0	2	12,050

A fishing job delayed progress on the Shreveport field's most advanced drilling operation, Hurricane Petroleum Company's North 1, Section 34-18n-14w, inside production which was trying to unlodge hung drill stem at 5415 feet. The same company spudded another test during the week inside producing limits. Two other tests are drilling, besides an old hole trying squeeze job. Another operation is rigging. Bad roads continue to hamper operations in this field.

Samuel S. Alexander's Stell A-1, NE NE 5-12n-16w, DeSoto Parish wildcat near Logansport, showed 400 feet of mud cut with oil and gas in a 35-minute drill-stem test, with 3/8-inch choke at bottom and open at top, and will be cored carefully ahead from 3046 feet where test was made. If no better shows are logged, efforts may be made to complete at present depth which is in the Paluxy.

E. T. Oakes is planning to re-acidize E. C. Kilgore 2, NW SE 28-21n-5w, northwest outpost at Lisbon that he has been testing for some time in basal Glen Rose lime at 5317 feet.

Union Producing Company's Walker-Morgan 1, C 30-18n-8w, deep test at Sibely, Webster Parish, drilled at 6830 feet in black shale with streaks of lime near top of Travis Peak.

Location for a cooperative deep test in the Lisbon field to be in or near Section 26-21n-5w, is expected to be announced soon. Several efforts to pool acreage for a deep test, possibly to the Permian, have been made before in Lisbon which now produces from basal Glen Rose lime at 5200-5300 feet.

Shreveport. — Fourteen drilling permits were authorized last week by the Louisiana Conservation Commission of which only 3 were for North Louisiana, all in Webster Parish. The 11 in South Louisiana were divided among the following parishes: Acadia, 2; St. Landry, 2; St. Mary, 6; Terrebonne, 1.

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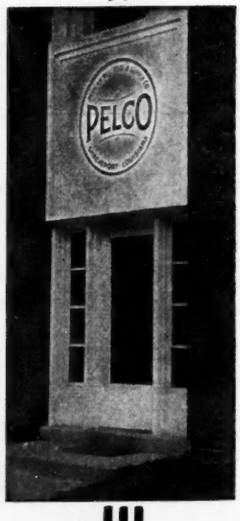

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Arkansas Fields

Eighth Magnolia completion has areas' largest flow

El Dorado, Ark.—The eighth and potentially the largest well so far completed in the Permian lime horizon of the Magnolia field, Columbia County, was added last week at Atlantic Refining Company's F. Barnett 1, SW SE 14-17-20, flowing 147 barrels the first hour, and 187 barrels the second through ¾-inch choke, and later pinched to a ½-inch choke, flowing 101 barrels first hour and 111 barrels second hour, before being further pinched in to the allowable. Total depth is 7610 feet and 110 feet of saturated lime was logged topped at 7476 feet. Seven-inch casing was cemented at 7499 feet. Top of the Buckner was 7327 feet and top of the Smackover lime, 7384 feet. The company announced two offsets. Four tests are drilling in this field with three others with materials on location.

The Schuler field, Union County, added three oil wells last week to make nine in the last fortnight and reduce the number of drilling operations in Schuler to five, although there are four other active locations.

Failing in two attempts to make drill-stem test inside casing, Ohio Oil Company and Shell Petroleum Corporation last week resorted to swabbing at Warren 1, SE SE 13-16-24, LaFayette County wildcat, at 7220 feet in Permian lime, but the well showed only a little oil and salt water when hole had been swabbed down to 6000 feet. Operators may deepen and if nothing more promising is logged, plug back to present depth and acidize. In the same county, J. K. Wadley and associates' Taylor 1, Section 15-19-26, LaFayette County, after logging top of Hill sand (Glen Rose) at 5845 feet, was unlodging stuck drill stem at 5960 feet. No showing was logged in the Hill. This test is supposedly along a northeast projection of the Rodessa fault.

Production in the lenticular at 3100-foot horizon of the Rainbow City (Champagnolle) field, Union County, was extended a half-mile southwest when S. S. Alexander's Gaddy 1, NE NW NW 13-17-14, was completed at 3140 feet, flowing 500 barrels daily through choke. Saturation was logged from 3038-50 feet.

J. E. Smitherman and associates of Shreveport, who several months ago took over a test drilled to 4500 feet and the block surrounding Section 4-17-21, Columbia County, have assigned 6000 acres to Standard Oil Company of Louisiana, and 1000 acres on the north part of the block in township 16, range 21 to Phillips Petroleum Company to fill out the latter's 3000-acre block in that township and range near the town of Waldo. Permian lime tests are planned on both blocks.

Wilcox strike at Eola spurs Mississippi interest

Jackson, Miss.—Discovery of oil production in the Wilcox at Eola, southern Rapides Parish, Louisiana, has given renewed interest to South Mississippi development where a quiet leasing and geophysical exploration campaign by several companies has been under way for many months. In the South Mississippi "trend," Skelly Oil Company has just secured a 4000-acre block in Pike and Amite counties, just west of McComb in township 3, range 7, north and west of a block taken some time ago by The California Company. Skelly Oil Company has also taken some protection acreage in township 2, range 9.

A geophysical crew working around Meridian, Lauderdale County, has moved to Yazoo County, Mississippi delta section.

ARKANSAS COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Dr'd
Columbia:					
Magnolia	1	1	0	0	7,610
Union:					
Rainbow City.	1	1	0	0	3,140
Schuler	3	3	0	0	22,145
Total	5	5	0	0	32,895

Mobile Bay geophysical work given approval

Mobile, Ala.—Application of Phillips Petroleum Company to conduct oil surveys in the waters of Mobile Bay, along the shore of Baldwin County, Alabama, has been approved by federal authorities, and Seismograph Service Corporation has been employed to do the work. It has already stationed a 15-man unit at Fairhope, Alabama. Geo-phone seismographs will be placed 100 feet apart in the area being tested, it is said.

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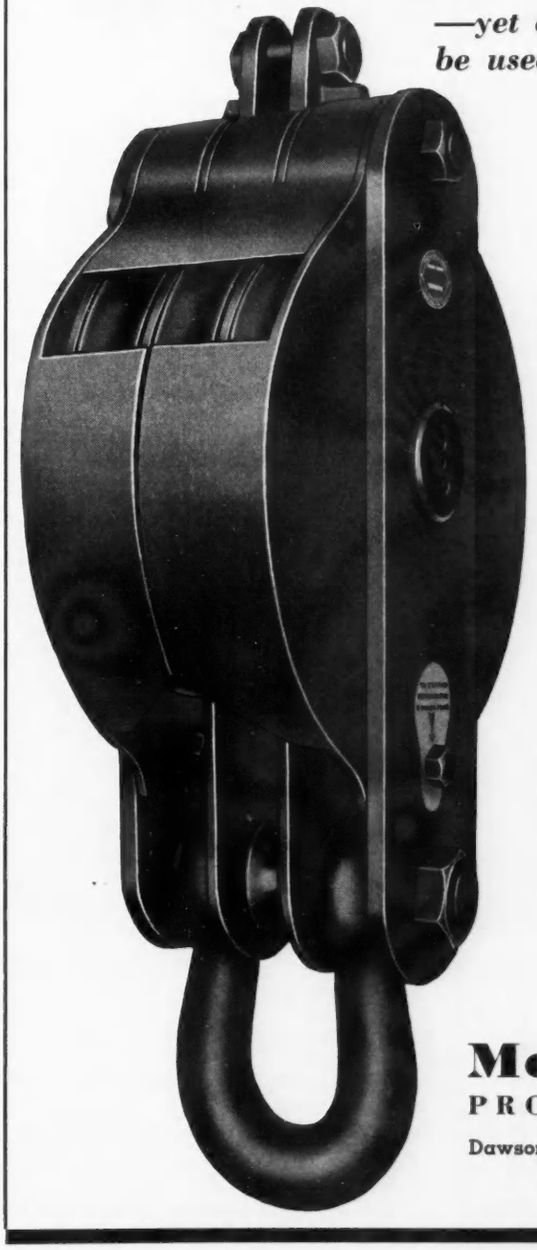

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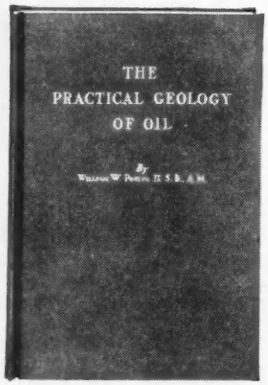

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Mountain States

Lance Creek production extended half mile south

Casper, Wyo.—The Lance Creek field in Niobrara County, eastern Wyoming, continues to hold the spotlight for activity in the Rocky Mountain district. The southern extension test of the field, Adams Oil & Gas Company and Felmont Oil Corporation's Baker 1, NW NE SW 8-35n-65w, is swabbing from 80 to 100 barrels of oil daily from the Leo sand of the Minnelusa series in which well is bottomed at 5566 feet. Location is ½-mile south and east of the nearest producing well on the southern side of the field. The well will call for 2 immediate offsets, 1 to be drilled by the Unit operators and 1 by Buck Creek Oil Company.

Ohio Oil Company is pushing its development program on the eastern edge of the Lance Creek field. Leo 1, OPC-7, NWc SE 35-36n-65w, eastern outpost, is rigging rotary and will deepen from 5641 feet. This well originally was completed in the fall of 1937 for 13 barrels of oil and 50 barrels of water initial and will be deepened to test lower benches of the sand.

First of the recently started Sundance wells drilled under authorization of the commission in charge of development of the Unit area of the Lance Creek field, Continental Oil Company's Schuricht 7-B, was completed last week for an initial production rating of 150 barrels daily. An inside location in the field, it is producing from plugged depth of 3949 feet. Several other wells in the field are nearing completion stages. Argo Oil Corporation's Elliott 9, NWc NW SE 5-35n-65w, also drilling to the Sundance productive zone of the field, is down 3968 feet in the saturated Basal Sundance sand topped at 3931 feet. Operators have run 7-inch production string to the top of the sand and are running tubing for a production test.

On the extreme eastern edge of the Lance Creek field area, Ohio Oil Company's Leo 6 OPC-16, NW NE SW 35-36n-65w, is drilling below 5541 feet with the objective Leo sand formation expected within the next 100 feet. Continental Oil Company's Apex-4 3, SE SW NW 35-36n-65w, is making hole below 4836 feet after logging the Basal Sundance sand at 3907-3949 feet. This company has started drilling Tom Bell 14, NW SW 34-36n-65w, inside location which was recently spotted to drill to the Minnelusa series. Hole has been drilled to 354 feet where it shut down for cement to set around 13⅜-inch surface casing at 313 feet.

Two new well locations were released in each of the major producing fields of Northern Montana area, the Kevin-Sunburst and Cut Bank fields in Toole and Glacier Counties respectively. Operations in this area have been slacking off during the winter but show indications of a revival during the current year with early pick ups in activty exceeding those for the same period a year ago. The present 4 starts bring the total of active drilling wells in the state at the present time to 14 of which 5 are in the Cut Bank field and 7 in the Kevin area.

In southern Wyoming, Wyoming Petroleum Corporation has succeeded in installing control head on Charles Budd 1, C NE NE 10-29n-113w, wildcat well on the Dry Piney Structure, Sublette County, and is pumping in heavy mud in an effort to kill the gas flow which has been running wild at the rate of 40,000,000 cubic feet daily since early in December. The well, which bottoms at 1698 feet, has been delayed by ice which formed from water blowing out with the gas flow and completely encasing the derrick, making it impossible to approach the well head to install the necessary control equipment. Operators melted sufficient of the ice away from the well with steam to install the control head.

Drilling has been started on Sinclair-Wyoming Oil Company's Mahoney-Unit 2-A, C SW NE 34-26n-88w, latest start in the Mahoney Dome field, Carbon County, southern Wyoming. It is to be drilled to the deep Tensleep oil producing formation of the field. Production of commercial gas is also obtained from the Dakota and Sundance horizons in this field.

Sinclair-Wyoming Oil Company's newest start in the Lost Soldier field, Sweetwater County, southwestern Wyoming, Lost Soldier 82, NE SW SW 11-26n-90w, has started drilling with portable rotary equipment and is making hole below 655 feet after cementing 12½-inch conductor pipe at 357 feet. Operators have rigged up standard tools and deepened Lost Soldier 81, SE NW 11-26n-80w, to 2040 feet where further testing is in progress.

Joint with The California Company, Ohio Oil Company's Union Pacific-Johnson 7, CS NE SW 23-21n-79w, Big Medicine Bow field, Carbon County, southern Wyoming, is drilling below 5713 feet feeling for the second Sundance formation, principal producing horizon of the field. It logged base of the first Sundance at 5712 feet earlier in the week.

COLORADO COMPLETIONS

County	Completions	Oil Oil	Gas Gas	Dry Dry	Feet Feet
Elbert	1	0	0	1	7,578
Moffat	1	1	0	0	3,431
Total	2	1	0	1	11,009

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Glacier (CutBank)	3	2	0	1	7,218
Toole (Kevin-Sunburst)	1	1	0	0	2,908
Total	4	3	0	1	10,126

WYOMING COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Big Horn	2	1	0	1	4,842
Carbon	1	1	0	0	4,506
Fremont	1	1	0	0	431
Lincoln	1	0	0	1	400
Park	1	0	0	1	3,079
Weston	2	1	0	1	1,945
Total	8	4	0	4	15,203

Montague County hearing

The Texas Railroad Commission has scheduled a hearing for February 3 at Austin on the area near Rogers and Rogers' J. E. A. Burnett 1, in the J. Lenow Survey, Montague County. Operating rules for the field will be considered at this hearing.

New Mexico Fields

Production in Lovington area extended eastward

Hobbs, New Mexico.—Expansion of the oil area in the recently established Lovington pool, Lea County, to the east became assured late last week when Repollo Oil Company's State 1-182, SW SE SW 31-16s-37e, cored a porous section of oil saturated lime at a higher level than the two previous oil completions. Tubing was being installed to try for a completion at 4760 feet, according to late reports, after logging the most favorable pay section at 4611-43 feet, with an elevation of 3820 feet. State 1-182 topped the Yates at 3031 feet, and first brown lime at 3185 feet. It is a mile southeast of the oil discovery, and 1½ miles northeast of the second oiler.

Stanolind Oil & Gas Company's State 1, C SW SE 1-17s-36e, east offset to a flowing oil producer, was rated at 5,600,000 feet of wet gas daily after perforating 7-inch casing with 30 shots at 3891-3911 feet in the big lime section. No porosity or saturation was logged in drilling to 4980 feet, or 1154 feet sub-sea, and the hole was cemented back to 4195 feet for gas production to perpetuate the short-term lease. The use of cement in plugging back discounts the possibility of the company later deepening the hole to the water level.

Amerada Petroleum Corporation's State 1-L-A, west offset to the above gasser, was completed January 18 after acidizing saturated zone at 4664-4815 feet, and last mid-week flowed 195 barrels of 37.1-gravity oil with 692 feet of gas per barrel in 24 hours through 30/64-inch tubing choke. The oil production from this well and that of Skelly Oil Company, discoverer, is being trucked to a pipe line connection in the Hobbs field for 11 cents per barrel. No pipe line connection will be available for several months, although more drilling is in store for the field due to required offsets.

Lea County Operations Drop

New operations in Lea County declined to 4 the past week, indicating that operators may defer the drilling of scores of necessary offsets that have accumulated in recent months. This curtailment of drilling will not remain in effect for any appreciable period, as offset drainage by commercial wells is generally matched with wells within a few months.

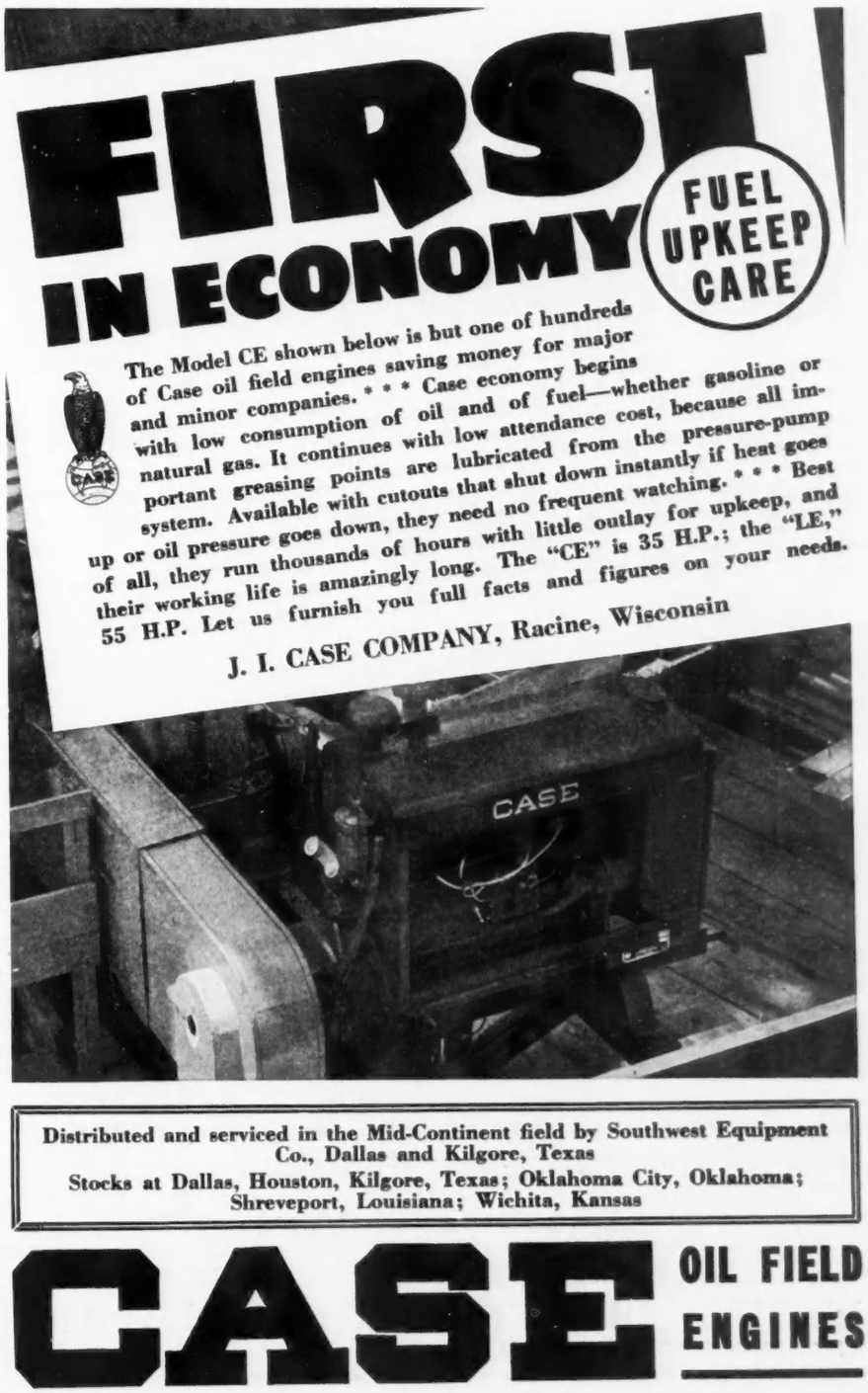
Another prolific well was added by the north portion of the Langlie sandy-lime area through the completion of Phillips Petroleum Company and Pure Oil Company's Woolworth 4, C NW SE 33-24s-37e. This well flowed 180 barrels natural in 3 hours through ¾-inch choke at 3491 feet, with gas volume rated at 750,000 feet daily. The rig has been skidded one location south to drill Woolworth 5, an east offset to a big well completed recently by Montecito Corporation.

Continental Oil Company et al's Sanderson 1-A-B-14, C N½ NW NW 14-20s-36e, near southwest edge of the Monument field, averaged 27 barrels per hour natural for 3 hours through ¾-inch choke from lime at 3775-3825 feet. The partnership has derrick up for Sanderson 4-B-14, C E½ SE SW 14-20s-36e. J. M. Rush et al's State-Conoco 3-A, NW SW SE 20-20s-37e, near the junction of the Eunice and Monument fields, flowed 42 barrels of 32-gravity oil initial through ¾-inch choke after two-stage acid treatment of pay at 3800-42 feet.

Operators in the Vacuum area have apparently run their course in seeking production extensions, and are now content to take care of the numerous required offsets. Five outlying dry holes and a failure that offsets production have not established the limits of production, but the most prolific section is believed to be outlined by these and sub-normal producers. New operations include Phillips Petroleum Company's State-Santa Fe 23, C SW SW 26-17s-35e, and Standard Oil Company of Texas' State 3-23-3, C NE NW 32-17s-35e.

NEW MEXICO COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Eddy County:	1	1	0	0	4,040
Lea County:					
Eunice	1	1	0	0	3,842
Langlie	3	3	0	0	10,423
Lovington	1	1	0	0	4,813
Monument	1	1	0	0	3,825
Penrose	1	1	0	0	3,742
Vacuum	4	4	0	0	18,801
Total	12	12	0	0	49,486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California Fields

East Coalinga extension well has big flow from thick sand. Deep test in Buttonwillow area reports favorable oil show.

Los Angeles.—Superior Oil Company's Cagle 1, Section 6-20-16, outpost of the East Coalinga field, Fresno County, was completed January 21, for a flow estimated in excess of 50,000 barrels of high-gravity oil per day from 7711 feet. Production is said to be from the greatest sand thickness than other wells completed in this Eocene sand field. It is the most northerly well in the field, being 4000 feet from the nearest producer, and adds approximately 500 acres to the field. Flow from the well is being. choked in and in observing curtailment regulations will be produced at the rate of 400 barrels per day.

Robert S. Lytle's No. 37-7F, Section 7-20-16, has been completed for a substantial yield at 7700 feet, after taking in more than 500 feet of oil sand. Standard Oil Company's No. 1-17F, Section 17-20-16 is coring oil sand below 7900 feet while Lytle has completed rig for an offset to Cagle 1, this being No. 31-18-F, Section 18-20-16. Lytle's No. 71-18F, Section 18-20-16, is standing cemented with bottom at 7574 feet and is slated for completion soon.

Petrol Corporation has gone back into Reserve-Petrol 33-5, wildcat situated in the Grapevine district, Kern County, with the intention of deepening it anywhere from 500 to 1000 feet with the asserted belief that after penetrating a Basaltic formation, or lava flow that the lower Temblor or Vedder will be found. Original bottom is at 6988 feet, with 8⅝-inch casing cemented at 4484 feet.

Richfield Oil Corporation's KCL 1 wildcat, Section 28-11-20, at Wheeler Ridge, has been plugged back to around 8562 feet and is yielding water. A new attempt will be made to get this interesting test to correct this. On initial completion it was good for 1800 barrels of oil but soon after turned wet.

In the Five Points area, northeast of the Huntington Beach field, new play has developed. The fact that several tests were drilled there in recent months and are capable of yielding upwards of 125 barrels daily each has led operators to believe that an extension of the old field may be established. Standard Oil Company owns fee on most of the land between these wells.

Four companies have launched wells at Five Points recently. J. W. Booth is preparing to drill Day 1, Dragon Oil Company will drill Jauman 1, Gunnar Erickson will drill Erickson 1 and Reid Petroleum Corporation's No. 1 is slated to spud soon.

Union Oil Company and Tide Water Associated Oil Company have joined in the drilling of a test in Kern County four miles northwest of Shafter, on Kern County Land Company holdings. Designated as KCL 36-1, Section 36-27-24, the location is two miles southeast of Continental Oil Company's KCL C-1, Section 26-27-24 which was abandoned at 13,064 feet last November. The new test is based on seismograph findings. It will be in line with the Greeley and Rio Bravo fields northwest of Bakersfield.

Since development of Buttonwillow gas field by Seaboard Oil Company, some have believed that oil would be found there. Last week, hopeful reports were heard from the well being drilled there by California Exploration Company. Salisbury 1, deep exploratory test in Section 7-29-24 has encountered thin streaks of sand in the shale giving slight cuts with bottom below 11,410 feet. Correlations indicate that the main portion of the Stevens zone probably will be found between 11,750 and 11,800 feet.

In the West Montebello field, McVicar & Rood's Manz 3 has been completed for 750 barrels of 37-gravity oil per day from 6682 feet. Olympic Refining Company's Smith Community 1 is nearing completion while Union Oil Company's Calkins 1 is coring below 7200 feet in shale. The development of commercial production below 7000 feet in this area is expected to bring about added work by smaller independent companies holding offset acreage.

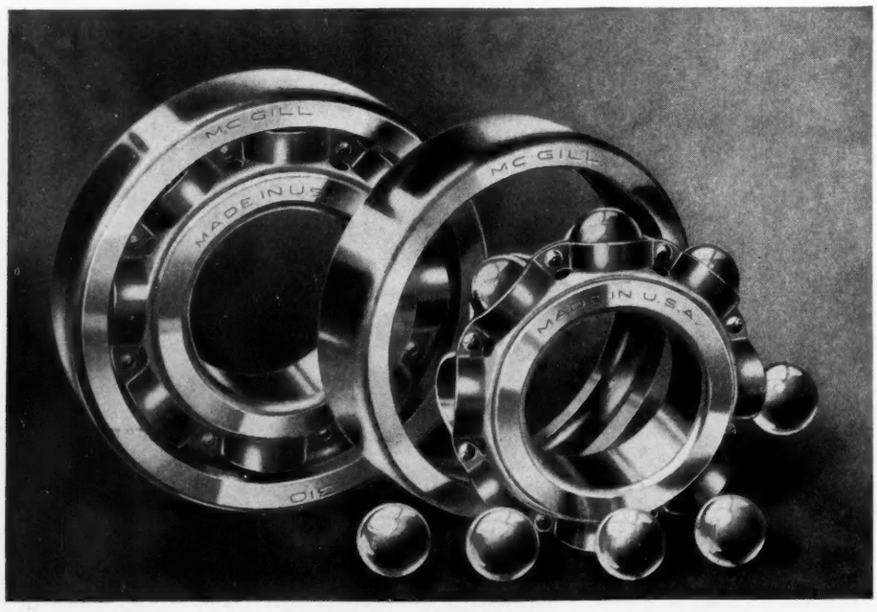
An occasional good well still is being brought in at Kettleman Hills North Dome. The Association's No. 65-20Q was completed last week for 1375 barrels of 37.8-gravity oil per day at 7650 feet along with 2,150,000 cubic feet of gas. Union Oil Company's King 4, Section 29-21-17, a recompletion, was brought in for 125 barrels at 8516 feet on the gas-lift.

In the Sespe district of Ventura County, Speik Oil Company's No. 2, Section 33-5-19, is reported good for 120 barrels daily from 2462 feet. St. Louis Oil Company's Williamson 1, Section 1-4-20, at 2000 feet, was placed on the pump and is yielding around 80 barrels daily.

With the coring of fairly saturated oil sand around 4920 feet in its outpost well in the Torrance Extension, Kovell Oil Company will be credited with bringing about a renewal of drilling activity in that district. Reportedly running higher on the structure than other wells, casing has been landed and production test will be made in a few days. Kovell's well is 1200 feet from the nearest production. Long Beach parties are preparing to deepen two Shell Oil Company wells, Kettler Nos. 9 and 10.

CALIFORNIA COMPLETIONS

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Los Angeles	12	11	0	1	71,827
Orange	2	2	0	0	8,360
Fresno	1	1	0	0	1,301
Kings	1	1	0	0	8,520
Kern	5	2	0	3	21,411
Total	21	17	0	4	111,416



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Michigan Fields

New shallow Traverse lime pool in Allegan County

Mt. Pleasant, Mich.—A new shallow Traverse lime oil pool was indicated in Allegan County last week when Bell & Marks, Inc.'s Brower 1, NW SW NW 23-3n-12w, Hopkins Township, tested 1300 feet of oil in 6-inch casing at 1663 feet. Traverse lime was topped at 1661 feet. The test originally was started by Chulski & Varner and then taken over in an acreage deal by Bell & Marks, Inc. It is three locations east of a test drilled last year that showed about 5 barrels a day but cut water in the pay and was finally abandoned after being tested for three months.

Gulf Refining Company's Bateson 1, Section 2-14n-4e, Bay County, in Eastern Michigan, continued coring and drilling in Monroe limestone at 3695 feet with 1600 to 2000 feet of fluid in the 8-inch hole, estimated at about 90 percent oil. Top of the Monroe was picked up at 3079 feet with a good pay drilled at 3530-35 feet. This test probably will be carried to 4500 feet or better. Eight-inch casing is set at 3120 feet, and probably will be reamed down through the Monroe saturation zone after expected water zones are drilled. Operators estimated that the 3530-35-foot pay would produce around 50 barrels daily natural.

Parker Drilling Company is contractor on the test using an extra heavy 84-foot derrick, double reinforced. The rig is powered with a 140-horsepower Diesel. Calf wheels, seldom used in Michigan, to carry the heavy casing string; chain driven sand reel; hydraulic brake; are some of the extra equipment on the rig not ordinarily used in Michigan. The rig was shipped in from Kansas for the test. The derrick came from Pennsylvania and the crew was recruited from New Mexico.

Production tests and deeper drilling were slated this week for Carscallen & Andersons' Longnecker 1, SE SE SE 4-7n-13w, Ottawa County, a wildcat, which filled with oil and flowed after standing 72 hours. Traverse lime was logged at 1985 feet and the hole bottomed at 1986 feet for 6-inch casing. The test flowed before casing had been set. This test is only seven miles northwest of a new pool just getting started in development in Walker Township, Kent County.

A major west extension to the Bloomingdale pool in Van Buren County was developed this week when F. P. Hurt's Healy 1, SE NE SE 7-1s-14w, acidized to 70 barrels an hour from a hole full of oil natural. Traverse lime was logged at 1212 feet and the hole bottomed at 1220 feet. This test is three quarters of a mile northwest of Traverse production and is expected to add between 150 and 300 acres for immediate development. About 50 percent of the added area probably will be drilled on a 2½-acre unit plan due to small leases.

MICHIGAN COMPLETIONS

County	Completions	Oil Wells	Gas Wells	Dry Holes	Feet Drl'd
Allegan	7	5	0	2	7,659
Clare	3	3	0	0	11,696
Ogemaw	1	1	0	0	2,690
Van Buren	6	3	0	3	7,702
Total	17	12	0	5	29,747

A drilling program of importance was being launched this week in Isabella County, Wise Township, following acid treatment of McClanahan and Whites' Nixon 1, SE SE SE 17-16n-3w. This test, a 1¼ north extension from the discovery, initialed 7 barrels an hour natural and flowed 510 barrels in 13 hours after a 2000-gallon acid treatment. It was producing 310 barrels on the fourth 24-hour test. Nixon 1 is producing from Dundee lime at 3702 feet, 12 feet higher structurally than the discovery. Six new locations (on 20-acre diagonal units) had been staked this week.

Gulf Refining Company will attempt to salvage Hall 2, NW SE SW 34-19n-6w, Redding Township, Clare County, by re-drilling the Monroe lime pay. This test is a north and west offset to commercial wells but apparently on the edge in the Freeman-Redding pool. When originally drilled in last November, it was bottomed at 3923 feet and after flowing oil for 5 minutes went dead and tested 2000 feet of water. Attempts to plug back and re-drill the same hole failed. Now the hole has been plugged back to 2510 feet and a rotary will be moved in to directional drill a new pay. It will mark the first time this has ben tried in Michigan.

Daily Crude Oil Company's Rand & Thomas 1, Section 28-20n-6w, Winterfield Township wildcat, Clare County, six miles north of proven Monroe lime production, is shut down at 3859 feet with water. A light show of oil was tested through 3000 feet of Traverse water at 3829 feet. Attempts to get a water shut off at the 3819-foot 5-inch casing point never proved successful.

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WILDCAT REPORT
New Starts and Completions

STATE	WILDCATS STARTED		WILDCAT TESTS COMPLETED							
			Total		Oil		Gas		Dry	
	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year
Alabama	...	1	...	...	...	...	...	...	...	...
Arkansas	...	1	...	1	...	...	...	...	...	1
California	6	29	1	12	...	6	...	...	1	6
Illinois	23	29	4	7	...	1	...	...	4	6
Indiana	...	3	...	...	...	...	...	...	...	...
Kansas	2	15	3	12	1	5	...	...	2	7
Kentucky	...	1	...	...	...	...	...	...	...	...
Louisiana	3	15	1	9	...	2	...	...	1	7
North Louisiana	2	5	1	3	...	...	...	...	1	3
South Louisiana	1	10	...	6	...	2	...	...	...	4
Michigan	1	13	2	15	...	...	...	...	2	15
New Mexico	...	...	...	1	...	1	...	...	...	...
New York	...	...	1	1	...	...	1	1	...	...
Oklahoma	6	14	1	15	...	2	...	1	1	12
Ohio	...	...	1	1	...	...	...	...	1	1
Texas	19	69	17	59	2	5	...	1	15	53
East Texas	3	6	1	5	...	...	...	...	1	5
North Texas	...	1	5	11	1	3	...	1	4	7
Gulf Coast	3	12	1	6	1	1	...	...	...	5
Panhandle	...	1	...	...	...	...	...	...	...	...
South Texas	12	35	9	28	...	1	...	...	9	27
West Texas	1	14	1	9	...	...	...	...	1	9
Wyoming	...	1	...	...	...	...	...	...	...	...
Total U. S.	60	191	31	133	3	24	1	3	27	108

CALIFORNIA

FIRST REPORTS

Los Angeles County — Dauphin Development Corp.'s Dunn 1, 1074 ft n and 2955 ft w sec 22-11-4, rig.

Fresno County—Harry P. Diamond's No. 7, 19.4 ft n and 197 ft e nec 2-21-14 (in 35-20-14) rigging rotary.

Kern County—Shell Oil Co.'s KCL 2A-23-2, 1656 ft s and 990 ft e nwc 2-29-26, rig. Honolulu Oil Corp.'s No. 5A, 1125 ft n and 440 ft e swc 14-32-24, elevation 820 ft, rigging rotary.

Tulare County—Dilamar Oil Corp.'s Quinn 3, 1500 ft s and 1240 ft e nwc 15-25-27, rigging rotary.

Santa Barbara County—Western Oil Royalties' Bryce 1, 333 ft n and 50 ft w sec lot 14, Blk 58, on lot 9, Carpinteria townsite, lcn.

COMPLETIONS

Los Angeles County—Shell Oil Co.'s Irvine 2, 3079 ft due n and 1817 ft due w from most sly c lot 96 of Irvine Subdivision, abnd 2241 ft.

ILLINOIS

FIRST REPORTS

Bond County—Joe Kesl's White & Bone 1, sw se nw 17-5n-4w, moving in materials.

Christian County—Treleaven's Micenheimer 1, sw sw nw 31-12n-2w, loc.

Clark County—Maddis et al's English 1, e se sw 33-10n-14w, sd 80 ft.

Clinton County—Lindsey Bros. & British American's Boenhoff 1, nw nw ne 34-3n-4w, rig.

Coles County—Kingwood Oil Co.'s Tiven 1, c sw ne se 30-13n-8e, rig.

Crawford County—Snavely et al's Hostetler 1, sw sw sw 31-8n-11w, rig.

Cumberland County—Doran et al's Haskett 1, nw 15-10n-7e, loc. National Consumers Oil Co.'s Leaman 1, nw sw sw 4-8n-14w, rig. Kingwood Oil Co. and Gulf Refining Co.'s Davis 1, nw se se 26-5n-5e, loc.

Edgar County—Martin et al's Sturgell 1, c nw ne 12-12n-11w, drilling.

Jefferson County — O. L. Raye's Simons Heirs 1, ne ne nw 12-1s-3e, dk.

Gallatin County—Coates et al's Green 1, sw sw sw 16-9s-9e, dk.

LAWRENCE COUNTY—R. E. Lonergan's Fischer & Tewault 1, c se ne 12-4n-11w, loc.

McLean County—Oil Well Drilling Corp.'s Daubman 1, sw ne ne 33-22n-2e, dk.

Macon County—Decatur Oil & Gas Co.'s Cook 1, ne nw se 21-15n-2e, spd.

Marion County—Chicago Syndicate's William 1, nw ne se 36-1n-2e, sd 770 ft.

Monroe County—Michael et al's Faust 1, c ne ne 32-3s-10w, dr.

Montgomery County—Marhill's Doyle 1, se ne sw 29-10n-4w, rig.

Shelby County—Tatum et al's Brownbach 1, se ne nw 25-12n-2e, dk. Rex Developments Inc.'s Oscar Odell 1, ne se nw 20-14n-2e, spd.

Wabash County—Renwar Oil Co.'s Helm 1, se se nw 15-3s-14w, spd.

Washington County—J. L. Henderson Jr.'s Kornegger 1, ne ne nw 8-3s-1w, dr.

Wayne County—Iroquis Oil & Gas Co.'s Winzenberger 1, c ne sw se 7-3s-9e, dk.

COMPLETIONS

Jefferson County — Kingwood Oil Co.'s Wayer 1, c sw se nw 9-2s-2e, Shilo tnp, top Fredonia 2370 ft, abnd 2494 ft.

Monroe County—Collins et al's Hempe 1, ne ne se 36-3s-10w, top Trenton 780 ft, abnd 830 ft.

Schuyler County—Harry Schwartz' (Simcox) Thompson 1, sw sw sw 25-1n-2w, Woodstock tnp, abnd 1100 ft.

Wayne County—F. R. Stoker's Blackburn 1, se sw ne 8-2s-8e, Grover tnp, top Fredonia 3287 ft, abnd 3357 ft.

KANSAS

FIRST REPORTS

Barton County—Martin et al's Feltes 1-A, nw sw se 8-16s-12w, moving in materials.

Sedgwick County—Century Petroleum Co.'s Wilke 1, sw se sw 1-29s-2e, sd.

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COMPLETIONS

Butler County—Simpson & Estes' Farm 1, se ne ne 30-27s-7e, 2 mi s Knox pool, top Bartlesville 2714 ft, base Mississippi 3127 ft, top Simpson 3193 ft, hfw, abnd 3206 ft.

Cowley County—Ross et al's Backus 1, se se ne 31-30s-3e, 2½ mi sw Udall pool, abnd 525 ft.

Russell County—Wakefield's Meharg 1, sec 16-15s-13w, 1 mi Fairfield pool, top Ft. Riley 1780 ft, top Cottonwood 2092 ft, top Topeka 2785 ft, top Lansing 3066 ft, Kansas City lime 3112 ft, pumped and flowed 837 barrels, acidized 7000 gals, td 3112 ft, completed.

SOUTH LOUISIANA

FIRST REPORTS

Acadia—T. T. Tolson et al's Charles Turner 1, 300 ft s and 300 ft e of swc nw¼ nw¼ section 25-7s-1e, lcn.

MICHIGAN

FIRST REPORTS

Allegan County—Smith & Thompson's Laraway 1, nw ne ne 7-2n-11w, dr.

COMPLETIONS

Allegan County — Muskegon Development Co.'s Slater 1, sw sw nw 14-2n-16w, abnd 1296 ft. L. A. Shimmel's Saugatuck 1, ne se se 28-3n-15w, abnd 1397 ft.

Van Buren County—Dr. V. R. D. Kirkham's Hofacker 1, se se nw, top Traverse limestone 1292 ft, showed oil and water 1293 ft, abnd 1301 ft.

NEW YORK

COMPLETIONS

Steuben County—New York State Natural Gas Co.'s Boyd 1, Cameron tnp, 4 mi e Jasper, 6 mi n Woodhull field, top Tully 3187 ft, top Onondaga 3871 ft, top Oriskany 3891 ft, gauged 14,000,000 ft gas initial, td 3902 ft.

OKLAHOMA

FIRST REPORTS

Comanche County—Ker-Lyn Oil Co.'s Laging 1, c ne sw 30-4n-9w, spd.

Jefferson County—Weir's Carmichael 1, nec sw 23-7s-7w, dr.

Okfuskee County—I. T. I. O. Co.'s Palmer et al 1, ne se nw 5-10n-9e, lcn.

Oklahoma County—Eldridge's White 1, c ne ne 30-11n-1e, rur.

Pottawatomie County—Conley Drilling Co.'s Duperou 1, nec nw 18-6n-5e, rur.

Seminole County—Grimes et al's Dye 1, nwc se 2-5n-5e, rur.

COMPLETIONS

Hughes County—Phillips Petroleum Co.'s Mandler 1, se sw sw 1-6n-10e, 7 mi ne Calvin pool, top 2nd Cromwell 4364 ft, top Woodford 5157 ft, top Sylvan 5287 ft, top Viola 5357 ft, top Trenton 5392 ft, top Dense 5407 ft, top Dolomite 5435 ft, top 2nd Wilcox 5526 ft, top McLish 5597 ft, top Oil Creek 5865 ft, top Burgen 5920 ft, top Arbuckle 6105 ft, abnd 6153 ft.

OHIO

COMPLETIONS

Harrison County—Columbian Carbon Co.'s Miller 1, section 23, German tnp, top Cornifierous 4588 ft, top Oriskany 4769 ft, abnd 4790 ft.

WEST TEXAS

FIRST REPORTS

Irion County—J. W. Ellis et al's Sol Mayer 1, 330 ft out of sw cor T&P sec 240, blk 1, 5 mi nw Barnhart, moving in materials.

Pecos County—Ben Dansby et al's L. C. Lessenich 1, 330 ft out of se cor lot 10, H&GN sec 45, blk 9, moving in materials.

Jones County—R. B. Farris et al's B. D. Doty 1, 1300 ft fr n and 1200 ft fr w lines of south 169-ac of middle 369-acre Doty-Beasley tract, Wm. Evans sur No. 1, cem sur pipe.

COMPLETIONS

Pecos County—Geo. T. Abell et al's F. Baldwin-State 1, 330 ft out of sw cor lot 1, H&GN sec 24, blk 9, elev 2372 ft, top anhydrite 200 ft, top salt 425 ft, top Yates 1257 ft, abnd 2500 ft.

NORTH TEXAS

COMPLETIONS

Archer County—L. T. Burns et al's Benson 1-D, 900 ft fr n and 800 ft fr e lines sec 1398, TE&L Co sur, Gunsite lime 898-900 ft, abnd 1017 ft.

Cree & Hoover's J. H. Turbeville 1, 750 ft fr s and 550 ft fr e lines sec 157, Robt. Carson sur, Gunsite lime 1481-83 ft, sand 1491-94 ft, pb fr 1507 to 1494 ft, pumped 58 bbls oil and 12 bbls water initial.

W. B. Hamilton et al's C. E. Graham 1-B, 4000 ft fr n and 1350 ft fr e lines of S. Abercrombie sur, A-1249, Gunsite lime 1132-34 ft, abnd 1201 ft.

Montague County—L. T. Burns et al's M. Mitchell 1, 1932 ft fr n and 330 ft fr e lines of J. W. Massie sur, A-463, dd fr 4061 ft to 5062 ft, abnd.

Young County—Henry Craig et al's Ben Schlegal 1, 150 ft fr s and 783 ft fr w lines nw sec 74, TE&L Co. sur, abnd 1166 ft.

SOUTHWEST TEXAS

Bexar County—Dr. L. L. Skaggs' Braubach Estate 1, 150 ft ne line and 150 ft nw line, 250-ac tr, Fernando Rodriquez sur, lcn.

Duval County — Al Buchanan Production Company and Blanco Production Company's Atlee Parr 1, 466 ft n line, 466 ft w line, block 58, Parr ranch subdivision, Andres Garcia heirs, San Andres grant, lcn.

C. G. Glasscock Nicholas' Garcia 1, 330 ft e line, 3700 ft s line, east 389-ac of 778-ac tr, share 11, Francisco Cordente Santa Cruz de Concepcion grant, lcn.

Hamill & Smith's Genaro Perez 1, 330 ft southerly s line, 330 ft easterly w line of n 125-ac of the 2120-ac tr, Perez Heirs, Francisco Cordente Santa Cruz de Concepcion grant, lcn.

Magnolia Petroleum Co.'s Duval County Ranch 2 (63), 330 ft w'ly w line, 990 ft n line, 480-ac tr and BS&F sur 63, lcn.

Magnolia Petroleum Co.'s Duval County

Ranch 2 (101), 330 ft n line, 330 ft e line of blk 7, league 101, Duval County School Lands, lcn.

Kendall County—H. T. Crist and W. S. White's Eda Schoenewolf 1 (2nd hole), 180 ft w line, 5325 ft n line, W. F. Wilson sur No. 2, replacement for No. 1 junked, lcn.

Kerr County—Meteor Oil Corp.'s Whitworth 1, 1160 ft s line, 1333 ft e line of HE&WT survey No. 1439, lcn.

Karnes County—Karnestex Oil Co.'s Yanta 1, 2200 ft e line, 400 ft n line 706-ac tr, S. B. Hardaway sur. Reinstated, contract to Ritchie and Bedwell.

Medina County—Gilcrease Oil Co.'s W. S. Lilly 1, 200 ft n'ly n line, 200 ft e'ly w line of 600-ac tr and sur 1359, lcn.

Refugio County — Copano Oil Co.'s Tom O'Connor 1-C, 1510 ft s line, 4148 ft e line of Tim Hoyt sur 786.45-ac lse, lcn.

San Patricio County—L. Bradstreet's John S. McCampbell 1, 330 ft n line, 330 ft w line of 119.6-ac lease, blk 45, Peterson subd, Robert McCampbell lands, Peter Mahoney survey, lcn.

Webb County—Houser & Campbell's M. D. Slator 1, 330 ft s line, 330 ft e line of blk 94, Mission Oil Company subd of Slator Ranch, Borego grant, lcn.

COMPLETIONS

Blanco County—D. N. Johnson's Glasscock 1, 600 ft north line, and west line 160-acre tract, section 50, abnd 550 ft.

Duval County—Arkansas Fuel Oil Co.'s Hernandez 1, 1400 ft s line, 467 ft w line, F. Hernandez sur 56, abnd 5513 ft.

S. K. & C. Oil Co.'s Welder 3, 3800 ft s line, 3420 ft e line, sur 103, abnd 3190 ft in Mirando sand.

Kendall County—Herbert N. Reed's Marquart 1, 268 ft s line, 1268 ft w line 520-ac tr, J. Traviesso sur, junked 995 ft.

Live Oak County—Texas Inland Oil & Gas Co.'s Withers 1, 330 ft sl and e line tract 12, M. C. Cowen Ranch sur, abnd 1019 ft.

Holland Oil Co.'s Wallace 1, 660 ft e line, 330 ft s line n ½ tract 1008, blk E, Geo. West sub, abnd 4150 ft.

L. W. Stieren's F. Lang 1, 1848 ft w of nw cor blk 12 and 220 ft s of road, sec 15, Simmons sub, abnd 1497 ft in Mirando sand.

Nueces County—O. W. Killam's C. Hoegemeyer 1, 466 ft s line, and e line sec 17, abnd 6537 ft.

Travis County—Wolters Bros.' M. Morrell 1, 474 ft e line, 2220 ft n line 126-ac lse, J. P. Kemp sur, abnd 835 ft.

EAST TEXAS

FIRST REPORTS

Limestone County—Walter H. Gant et al's Vol De Long 1, 330 ft se along se line of 100-acre tract fr ne cor of same and 330 ft ne at r/a on 220-acre tract, Pedro Varella sur, 1½ mi nw Thelma, dr 2200 ft.

COMPLETIONS

Angelina County—K. L. McHenry et al's Humble 1, E. T. Ry. sur No. 11, top Cockfield 398 ft, top Crockett 1420 ft, top Weches 2070 ft, top Queen City 2250 ft, top Recklaw 2300 ft, top Cane River 2425 ft, top Carrizo 2465 ft, top Wilcox 2553 ft, abnd 2614 ft.

EAST TEXAS BORDER COUNTIES

FIRST REPORTS

Marion County—Fisher & Coward's Susie A. Chatten 1, 830 ft n of sl and 330 ft e of wl lot 5, 840-ac, I. N. Jones sur, moving in materials.

Shelby County—W. H. Neill et al's Earl McDaniel 1, W. S. Childers sur, 10-ac, lcn.

COMPLETIONS

Panola County—Dearing & Son's Wooten 1, Mann sur, elev 282 ft, Annona chalk 1500 ft, top Blossom 2002 ft, dry abnd 2350 ft.

TEXAS GULF COAST

FIRST REPORTS

Liberty—Crown Central Pet. Corp.'s Kyle 1, 3000 ft fr the e line and midway between the n and s line of a 274.3-acre tract in James McFadden sur.

San Jacinto—Jack Frazier's Smith 1, Sheppard area, 466 ft out of the swc of 500-acre tract in J. D. Martinez sur, lcn.

Tyler—J. C. Bonham's Southwestern Lumber Co. 1, Rockland area, 200 ft s of Neches river and 435 ft w e line of 47-acre tract in B. Enloe sur, abstract 229, lcn.

COMPLETIONS

Austin—Kirby Pet. Co.'s H. J. Herring 1, Cat Springs area, 990 ft fr se line and 330 ft from ne line of 223-acre tract in H&TC section 171, salt water sands 4770 to 4774 ft, abnd 4975 ft, salt water sand.

Magnolia, Ark.—James B. Wright and associates of Gladewater, Texas, have completed plans for a proposed 2000-barrel daily skim plant for the Magnolia field. Work is expected to start soon.

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FEBRUARY 18 — DECEMBER 2

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FAST — DEPENDABLE FREIGHT SERVICE

Southern Pacific

J. T. MONROE—Pass. Traffic Mgr., Houston, Texas

LETTERS TO THE EDITOR

The subscribers win

Following are some of the letters received from subscribers concerning a change in editorial format made effective January 1, 1939.

After reading these letters and receiving numerous telephone calls, the editors have decided that the subscribers win—so, the former method of presenting completions in detail will be resumed with the February 6 THE OIL WEEKLY.

EDITOR.

GENTLEMEN:

I notice in the current issue of THE OIL WEEKLY of January 2, 1939, under your field reports, you have discontinued the method heretofore followed of reporting the wells completed by the different companies, and have merely given the number of wells completed in each field.

This was a very valuable feature because, in so far as I know, it was the only available source whereby one could keep a running check on the progress made by individual companies in the various oil fields. This is very important to one who is interested in checking the progress of the various oil companies. I sincerely hope that you may be disposed to go back to your previous method of reporting the wells completed by oil companies in the different fields. I consider this one of the most valuable features of your magazine, since no other publications offer this data in convenient form.

FRED B. ELY

Geologist and engineer,
New York City.

GENTLEMEN:

Until the new year, your field tabulations gave much of value; little, since the change. One could keep reasonably intelligent track of developments—even quite accurate maps of the good or lean spots in the different fields.

I submit that blanket number of completions, oil wells, or dry holes, with gross footage drilled means nothing to the reader, or searcher for facts of the field. Is it too much work and expense to furnish that information, as formerly?

Otherwise, nothing but congratulations on your up-to-date publication.

H. L. THOMPSON

Producer of gas and petroleum,
Kinzua, Pennsylvania.

GENTLEMEN:

The "streamlining" of the production information in THE OIL WEEKLY as of the beginning of the current year removed much of its practical value to the independent operator who desires, in a measure, to keep up with activity outside of his own district, particularly "Completions" as detailed for the last 20 years. To my mind, the summary of drilling operations in a district as set out in the January 2 issue is so much space wasted.

A. C. PARKS

Oil producer,
Wichita Falls, Texas.

GENTLEMEN:

We have been taking your magazine, THE OIL WEEKLY, for the past couple of years because it is the only magazine that gives New Mexico completions. We notice in the last two issues you only list the counties and the total number of wells completed in each. This information is of no value as we need the exact description of each well in the section, township and range.

We are just mentioning this fact, hoping that you will see fit to make your listings as you did previously.

BERT ASTON,
Sec'y and Treas.
Franklin Petroleum Corporation,
Oklahoma City, Oklahoma.

GENTLEMEN:

We note that in your last issue, just received, you have discontinued the practice of carrying completions as heretofore.

Of course, your weekly is run for the advertisers; but we would like to call your attention to the fact that you doubtless have many small producers like ourselves as subscribers. These producers buy products that come to their attention through the ads in your weekly but are not all in a position to subscribe to the drilling report services. However, they do like to be posted on completions.

We hope you will continue the policies that have proved successful and not deteriorate into a mere equipment catalog.

JOSEPH A. GRAHAM, *President*
Kavanaugh Petroleum Company,
Houston, Texas.

GENTLEMEN:

It was quite disappointing to us to note that in the first 1939 issue and all succeeding issues of THE OIL WEEKLY so far this year, you have discontinued showing the completed wells by companies, and are now showing only the total number of wells completed in the various counties, according to territories.

JEANETTE A. REHME,
Sales Department
Larkin Packer Company,
St. Louis, Missouri.

GENTLEMEN:

Here's one subscriber who does not like your new system of listing completions, as of the January 2 issue.

I hope this will be changed back to your old listing practice by fields, counties, etc.

Otherwise, your magazine continues to be excellent.

R. F. SAWYER, *Foreman*
Republic Production Company,
Silsbee, Texas.

GENTLEMEN:

It is noted that in the January 2 issue of THE OIL WEEKLY, page 57, table entitled "Summary of Wells Completed in the United States, Week Ending January 2, 1938," you have substituted the column, "Footage Drilled" in place of "Initial Production." This office has been using for sometime the figures published by you on initial production. Will you please advise if it is your intention to discontinue this information, and in either case, could you furnish us the initial production figures by states for the week ending January 27.

W. F. FUNSTON,
Chief Accountant
Atlantic Refining Company,
Philadelphia, Pa.

GENTLEMEN:

In the past, we have found THE OIL WEEKLY to be of much assistance in checking completions of individual wells in the Louisiana oil and gas fields. In addition, the current information concerning wildcat wells was of major importance. We notice that this portion has been omitted from the last two issues.

Please advise if your changes are of a permanent nature.

JAMES H. MCGUIRT,
Assistant Professor of Geology
Louisiana State University,
University, Louisiana.

GENTLEMEN:

Your present method of summarizing completions in each district is most unsatisfactory. It means little, except that a certain number of wells were completed in a district during the past week. The old form was much better; one could tell who drilled the wells and where (to a certain extent) without reading the detailed report. It would have been better if it carried the section, block and survey.

CHARLES F. BALPH, *President,*
Ross Oil Company,
Shawnee, Oklahoma.

Your Favorite Jack
—Now Better Than Ever!

The new Simplex 310A has 10 new features that enable it to raise, lower, push or pull vertically or at an angle; faster and 37% easier. It has a greater overload capacity, wider rack bar toe lift; triple-toothed lifting and retaining pawls; and 7 other features that make it a safer, handier, simpler tool for every jacking operation encountered in the field.

Ask your field store.

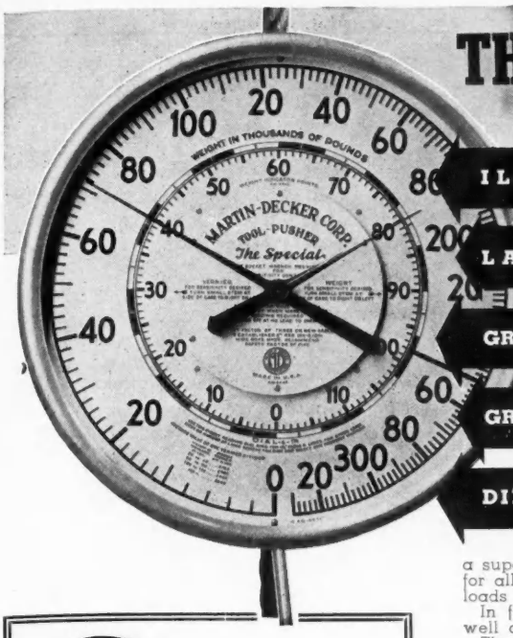
TEMPLETON, KENLY & CO., CHICAGO

Don't say "Jack"—say
SIMPLEX

West Virginia geological field trip arranged

Dr. Paul H. Price, West Virginia state geologist, announced last week that the Association of Pennsylvania geologists had accepted West Virginia's invitation to make a three-day field trip to examine its natural resources and formations. The trip will be made sometime in May.

THESE 5 "SPECIAL" FEATURES
Are Your Assurance of Accurate Well Control



Take a look at this new Martin-Decker "Special." It's a portable weight indicator with plenty of outstanding features—and, best of all, its efficiency doesn't go down with the setting sun!

For not only does the "Special" have an extra large dial that can be read easily from all parts of the rig, but built-in illumination lights up the entire surface of the dial face at night, making numerals and gauge hands just as readable at midnight as at noon. That means full 24-hour visibility, greater accuracy, and positive control over **all** jobs, whether it's drilling, pulling rods, or the most delicate of fishing jobs!

Besides day and night readability, the "Special" has other outstanding features, too. For example, the large dial face has etched numerals that give direct readings **both in pounds and in points** for any string-up and any standard line size . . . there are two gauge hands, one a supersensitive hand (six times as sensitive as the regular one) that provide vernier readings for all precision work . . . and the new **oversized** mechanism has sufficient capacity to handle loads on wells **deeper than any thus far drilled!**

In fact, the "Special" incorporates in **one complete unit** every important feature for proper well control where portability is essential and a chart record is not required.

The "Special" is ruggedly built of the finest materials, and the workmanship is the same that has made all Martin-Decker Products world famous for accuracy and long life. It is weather-proof, tamper-proof, vibration-proof, and its factory calibrated mechanism requires no pumping or priming. A handy carrying case is included.

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A timely, thoroughly practical book on a most important subject

Acidizing Hank Book **takes up the purpose of acidizing,** gives full information on formations which are treatable, tells how to determine treatability of formations, how to prepare a well for acidizing, and contains a section of tables extremely valuable to an operator planning to acidize a well.

The book is divided into 14 chapters which include:

Chemistry and Geology of Treatment—Treatment Acid —Preparation of Wells for Treatment—Mechanics of Treatment (4 chapters)—The Reaction of Salt Water to Treatment—Producing the Well After Treatment—Acidizing Gas Wells—Re-treatment and Multiple Stage Treatment—Other Uses of Muriatic Acid in the Field and Computations in Acidizing.

The author has had many years of experience in practical work acidizing wells.

The Acidizing Hand Book has a Fabrikoid binding, size 5½ x 8 inches, and contains 78 pages.

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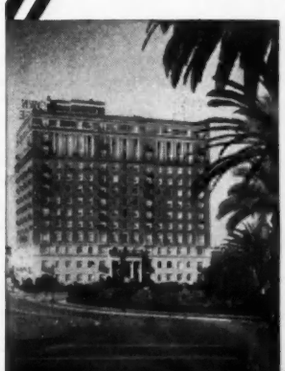

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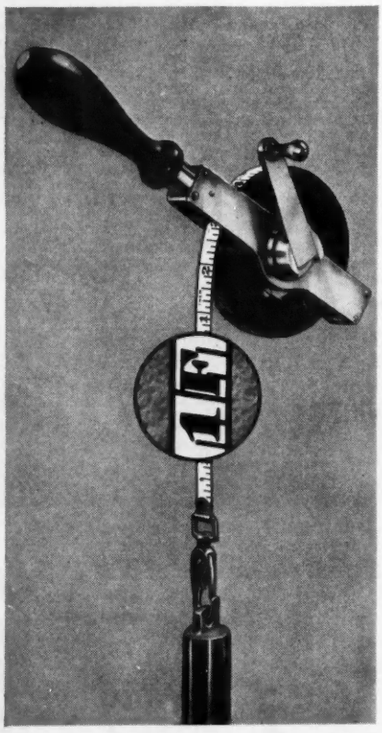
NOTES FOR THE Equipment Buyer and User

Gauge Tape

KEUFFEL & ESSER COMPANY

Keuffel & Esser Company, Third and Adams Street, Hoboken, New Jersey, announces a new tape designed specifically for gauging crude oil where wear against the gauge hatch, sandy



Keuffel & Esser Tape, designed especially for gauging crude oil.

residues and constant wiping are factors. Graduations, numbers and edges are raised black metal on white, the crack-proof white surface contrasting with crude oil to give a well-defined level mark, easy to read even in poor light.

Pump Governor

NORTHERN EQUIPMENT COMPANY

Northern Equipment Company, Erie, Pennsylvania, announces a new pump governor, the Copes Type SL, designed especially for service on steam-driven reciprocating pumps or on centrifugal pumps driven by small steam turbines. It is suited for excess pressure service in boiler feeding where the maximum excess pressure is no more than 75 pounds per square inch. It may also be used for constant-pressure service where the controlled pressure is not to exceed 75 pounds. It is furnished in sizes from ¾- to 3-inch, in the 250- and 300-pound pressure standards only.

The actuating element, a 4-ply brass sylphon bellows, is protected against water hammer or sudden changes in pressure by a stabilizer.

The Copes Type SL Governor is spring-loaded. The spring is carefully selected to have exactly correct characteristics for the specified pressure conditions, so that the pressure control provided is dependably accurate. An accurately balanced bevel-seating valve piston gives added assurance of instantaneous response to pressure variations, so that control is accurate under all loads. The manufacturers will furnish complete information on request.

Cementer

O. P. YOWELL SERVICE COMPANY

An entirely new tool that incorporates in a single unit means for packing off a section of casing in order to perform multiple-stage liner or high-pressure cement squeeze jobs has been announced by O. P. Yowell Service Company, Santa Fe Springs, California. This tool, known as the Yowell C. P. Cementer, does the work of a bridge below and a packer above the cementing joint, and, when removed from the hole upon completion of the job leaves nothing to be drilled up or removed later, according to the manufacturer.

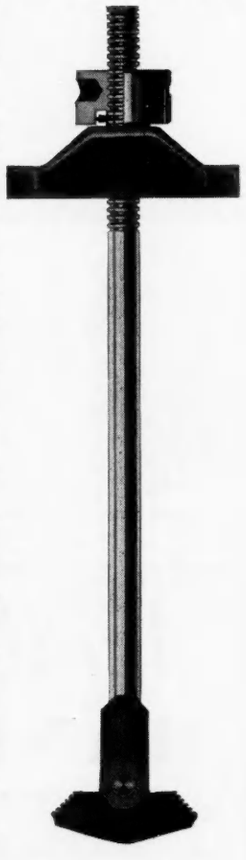
The Cementer consists essentially of an outer barrel having a series of pack-off rubbers, and an inner telescopic member that provides positive control over the direction of the fluid circulation. Slips are used to anchor the tool in place during cementing operations.

An important feature claimed for this cementer is that it can be moved to another C.P. point in the hole without coming out for adjustment, thus permitting multiple-stage cementing operations to be performed without coming out of the hole. After each job is completed, circulation can be reversed to thoroughly clean the tool. Cleaning and pumping out excess cement is carried on with the lower part of the hole packed off against all pump pressure or pulsations, so that the cement slurry behind the casing will not be affected. Circulation can be established whenever desired while going in or coming out of the hole.

Liner Puller

THE NATIONAL SUPPLY COMPANY

The National Supply Company, Toledo, Ohio, has developed the Ideal Type CH liner puller, which is simple in design, easy to center, and quick and positive in action. As shown in the accompanying illustration, it concentrates a direct pull on the end of the liner. There is no wedging force nor expansion, and the liner is pulled without injury to its inner surface. The pulling nut is made with a roller thrust bearing for greater ease of operation and travels on an Acme thread. It is provided with wrench holes for a leverage bar or spanner wrench. A small model designed for use with Ideal boiler feed pumps is identical in construction except for a plain thread and the omission of the roller bearing on the upling nut.



Ideal Type CH Liner Puller

Two-Speed Rotary Drive

OIL WELL SUPPLY COMPANY

Oil Well Supply Company, who developed and introduced to the trade the rotary drilling unit, comprising an oil-bath rotary direct-connected through a geared speed increaser to a vertical, twin-cylinder, steam engine with variable cut-off control, has introduced two new models featuring advantages not offered by the original design.

"Oilwell's" No. 72715 and No. 7272 rotary drilling units are the result of several years of experience with this type of drilling equipment. They feature a two-speed drive and more compact arrangement, the gear box being directly attached to the frame of the "Oilwell" No. 7 vertical engine. The two-speed transmission facilitates maintaining moderate and efficient engine speeds for both high and low table speeds. This feature is especially desir-

211 PERFECT JOINTS TO THE MILE WITH AXELSON SUCKER RODS

The lifeline of power to a deep well pump must withstand terrific shock loads, vibrations and the high stresses encountered in service. For more than 46 years AXELSON has built sucker rods and couplings to meet *successfully* the increasingly difficult well requirements in every field throughout the world. As loads became heavier, strokes longer and faster, AXELSON tightened the specification for sucker rod steel. Special manufacturing methods were introduced to assure longer life and greater field service for every rod. ℂ Today Axelson Sucker Rods pump oil for Operators all over the world at the lowest cost for equipment and with the least loss from "down" time.

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Complete information will be furnished on request or may be secured from your Supply Store.

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WALTER O'BANNON COMPANY
Tulsa Ft. Worth

O'BANNON
SUCKER ROD
SOCKETS

IF YOUR
PRODUCTS MEET
A.P.I. SPECIFICATIONS
YOU CAN'T BE WRONG

ALLEN GAUGES — PROVE YOUR PRODUCT

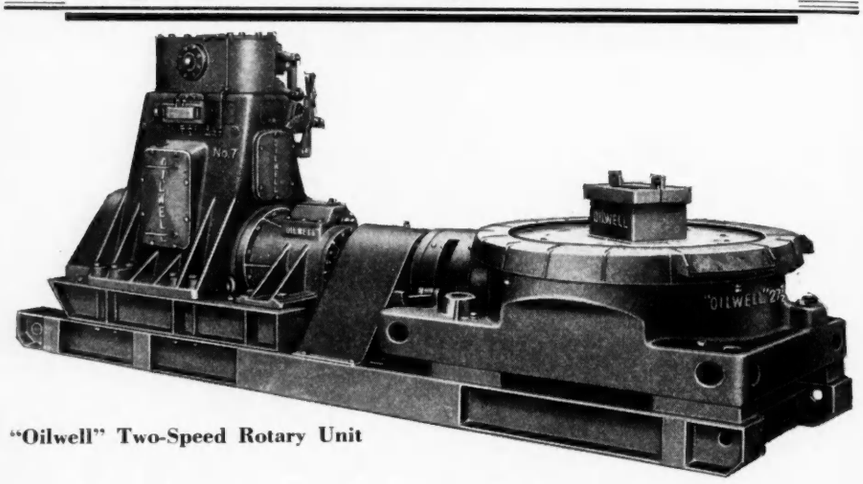
We manufacture a complete line of dial gauges for checking threaded tubular products.

- **Allen Lead Gauge — External and Internal.**
- **Allen Taper Gauge — External and Internal.**
- **Allen Thread Depth Dial Gauges— I. D. and O. D.**
- **Thread Spacers.**
- **Telescope Pipe Thread Alignment Gauges.**
- **Telescope Pipe Alignment Gauges.**
- **Thread Moulds.**
- **Wall Thickness Gauges.**
- **Thread Markers and Scribers.**
- **Dial Gauge Calibrators.**
- **Thread Wave Gauge.**

The above are but a few of our thread measuring instruments. For your convenience our engineering department will cooperate with you on any new instrument you may require.

General Engineering & Model Works
Manufacturers of
ALLEN GAUGES
Pittsburgh Pennsylvania

NOTES FOR THE Equipment Buyer and User



"Oilwell" Two-Speed Rotary Unit

able, the manufacturer says, where high rotating speeds for drilling must be alternated with low speeds for coring. The torque requirements of fast Gulf Coast gumbo digging are now more than adequately provided for.

A few of the operating advantages claimed for "Oilwell" rotary drilling units are: (1) Eliminates wear and replacement of rotary chain and sprockets; (2) provides an effective means for "drilling up" (rotating while hoisting slowly); (3) reduces wear-and-tear on the rotary, hoisting engine and hoist; (4) eliminates chain noise; (5) saves fuel and feedwater; (6) reduces lubrication expense; (7) saves time in "breaking-out"; (8) makes "spudding" easier and more effective; (9) gives the driller accurate control of the drill pipe and bit; (10) reduces danger of "twist-offs"; (11) saves valuable space on derrick floor; (12) provides auxiliary power for emergency hoisting of long strings of drill pipe; (13) simplifies drilling the rat hole; and (14) is remotely controlled (cut-off, reverse and throttle) from driller's position.

The No. 72715 and No. 7272 rotary drilling units are identical except for gear ratios. The No. 72715 has ratios of 1 to 1 and 1 to 1.54, whereas the No. 7272 has ratios 1 to 1 and 1 to 1.99. Both are described in "Oilwell" Bulletin No. 189, which may be had by writing Oil Well Supply Company, Dallas, Texas.

S. D. Rogers Leaves for Extended Foreign Tour

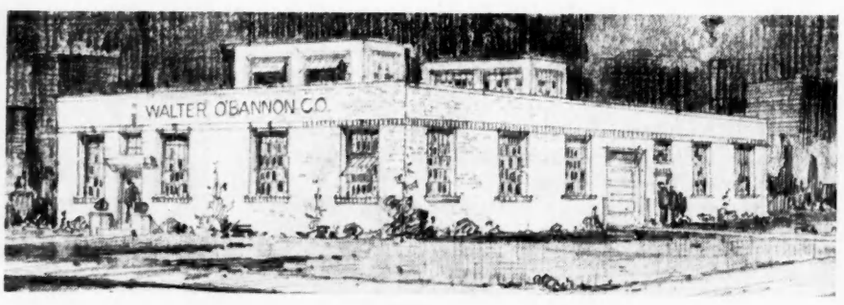
S. D. Rogers, foreign supervisor for Petty Geophysical Engineering Company, sails this week for London and The Hague. Following several weeks in these centers he will proceed to visit each of the company's three crews currently located in India and Sumatra. He is accompanied by Mrs. Rogers and small son, and expects to be gone 10 months.

John F. Imle, formerly with Humble Oil & Refining Company, Geophysical Department, but now connected with the Petty Geophysical Engineering Company of San Antonio, sailed on January 28 from New Orleans, to take up new duties as supervisor in the Caribbean area for the company. He expects to make his headquarters in Trinidad from which point he will make periodic visits to Venezuela.

R. R. Cowan to Represent Arrow Supply Company

Arrow Supply Company, Fort Worth, announces appointment of R. R. Cowan of Midland, Texas, as resident manager at Hobbs, New Mexico, effective February 1.

Cowan has been West Texas and New Mexico manager for Emsco Derrick & Equipment Company for the past four years. Prior to going with Emsco, in 1931, he was connected with The National Supply Company for approximately 12 years as store manager at Oklahoma City, Stroud and various points in Oklahoma.



Walter O'Bannon Company has recently completed a branch plant located at 2500 West Vickory Boulevard, Fort Worth, Texas. Operation of the new plant started Monday, January 9.

NOTES FOR THE Equipment Buyer and User

Red Tyson Joins Jones & Laughlin

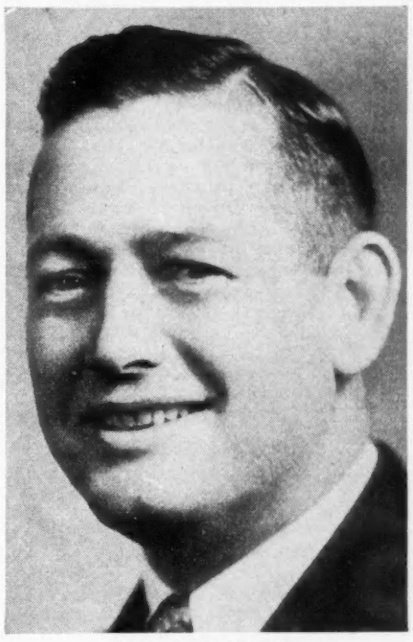
George E. (Red) Tyson joined Jones & Laughlin Steel Corporation on November 1. He will serve the oil country sales department, with headquarters in Houston.

Tyson has been Houston branch manager for U. C. Murcell, Inc., and prior to that time was sales manager at Houston for Hydril Company.

Spurlock Promoted to Sales Manager by Mid-Continent

Fred J. Spurlock has been appointed sales manager for Mid-Continent Supply Company.

Mr. Spurlock has been connected with the company for many years in various capacities, his most recent assignment being in charge of the company's pumping equipment division. He has moved to Fort Worth, Texas, where he will maintain headquarters in the company's general offices in the Mid-Continent building.



FRED J. SPURLOCK
Sales Manager, Mid-Continent Supply Company

W. H. Johnson Now Purchaser for Foote Bros. Corporation

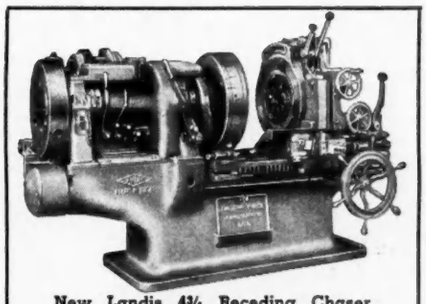
W. H. Johnson, formerly purchasing agent of Climax Engineering Company, Clinton, Iowa, and a man with an exceptional background and mechanical engineering experience along purchasing lines, has recently been appointed purchasing agent of Foote Bros. Gear and Machine Corporation, Chicago.

New Annex Provides Additional Space for Houston Oil Show

A new steel and concrete annex built adjacent to the coliseum will provide the required additional space that has been found necessary to accommodate the exhibits which will be installed at the 1939 Oil-World Exposition to be held in Houston from April 24 to 29, inclusive. This new building will have a floor space in excess of 90,000 square feet and is so located that its main floor will be a direct extension of the main floor of the $1,337,000 coliseum which was completed last year. In addition there will be a ground-floor exhibiting area on the same level as the outdoor exhibits. With the original coliseum building, the new annex connected to it, and with the outdoor spaces situated immediately adjacent to the buildings, the entire oil show will be consolidated into a unit that will enable visitors to see every exhibit with

William M. Barret, Inc.
Consulting Geophysicists
Specializing in Magnetic Surveys
Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.
GIDDENS-LANE BUILDING
SHREVEPORT, LOUISIANA

Standco
NO-SMOKE
STANDCO BRAKE LINING
Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 2100, Composite Catalog.
Standard Brake Lining Co.


New Landis 4¾ Receding Chaser Pipe Threading Machine
COMPLETE LINES
Machine Tools—Metal Working Machinery—Bolt and Pipe Threading Machines—Electric Arc Spot and Butt Welders—Hand Power and Electric Traveling Cranes—Foundry and Forge Shop Equipment
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Fx. 1466
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REED'S 'B-R' DRILLING BIT WITH WIRE LINE RETRACTABLE CORE BARREL
ANY NUMBER OF CORES CAN BE TAKEN (REGARDLESS OF DEPTH) WITHOUT REMOVING THE DRILL PIPE

HARD FORMATION HEAD (Interchangeable with Soft Formation Head)
REED 'B-R' Drill Collar and 3-Blade Drilling Bit with Core Barrel in position
REED ROLLER BIT CO.

DRAGON COMPOSITION CUPS
Users Know Dragon Valve and Pump Cups are Built for the "Longer Run"
Dragon Composition (for deep wells); Nobs Composition (for shallow), and Dragon Leather Cups save **profits, lost time** and **headaches,** because they perform longer — more dependably. Specify "Dragon"— built by cup specialists, since 1912.
"On Duty or in Competition — as Fearless as the Dragon"
The Dragon Mfg. Co.
Marietta, Ohio
NOBS COMPOSITION CUPS

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SALT DOME
OIL CORPORATION
★
Esperson Bldg.
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Analytical and Consulting Chemists
Podbielniak Gas Analyses
Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils
Long Distance 267, Box 132, Houston, Texas

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ALASKA! KODIAK BEAR!
(WORLD'S LARGEST BEAR)
1939 Spring Hunts NOW Booking! Hunt these Monster Bears with KODIAK GUIDES who know the country and have numerous references of successful hunts. REAL T-H-R-I-L-L-S AND REAL TROPHIES.
Winter mails to Alaska are slow and spring hunting begins about April 15th so WIRE or WRITE NOW via Air Mail for further details.
"Also 1939 Fall Hunts for Mixed Bag"
KODIAK GUIDES
KODIAK BOX 8. ALASKA

NOTES FOR THE Equipment Buyer and User

the utmost convenience and without passing up any display.

The greater facilities thus provided for the 1939 show have enabled the management to contract more space than in the previous exposition. Larger exhibiting areas have also been allotted to various exhibitors so that a more complete showing of entire lines of equipment can be made. Many manufacturers and suppliers of oil equipment are planning to demonstrate tools and machinery in operation and to provide means for showing the application of advanced designs under field and plant conditions. Much of the outside space will be devoted to demonstration work and to heavier pieces of equipment that will be kept in operation to enable the visitor to make a study of the working efficiency of machines.

Hercules Tool Company Export Representative Visits Factory

Lloyd G. Ensign, export representative for Hercules Tool Company, recently spent the day in Tulsa, in conference with executives of the company. In addition to analyzing export sales possibilities for a number of new Hercules oil well specialties, Ensign visited the company's plant before returning to his office in New York.

Heppenstall Company Makes Executive Personnel Changes

Heppenstall Company, Pittsburgh, announces that C. W. Heppenstall, since 1920 president and treasurer of the company, has become chairman of the board of directors, and that R. B. Heppenstall, formerly vice president and general manager of sales, has been elected president. His vacated position has been taken by S. B. Heppenstall, Jr., who has been assistant manager in the sales department. C. W. Heppenstell, Jr., formerly general manager, has been made vice president in charge of operations. G. F. Ritenbaugh, secretary of the company, also has been made treasurer.

C. W. Heppenstall has been with the company for 46 years and is of the fourth generation of Heppenstall steelmakers who have been associated with the industry in England and America for 147 years.

Heppenstall Company this year will celebrate the fiftieth anniversary of the business which was founded as Trethewey Manufacturing Company in 1889. C. W. Heppenstall's father was one of the founders of the original company.

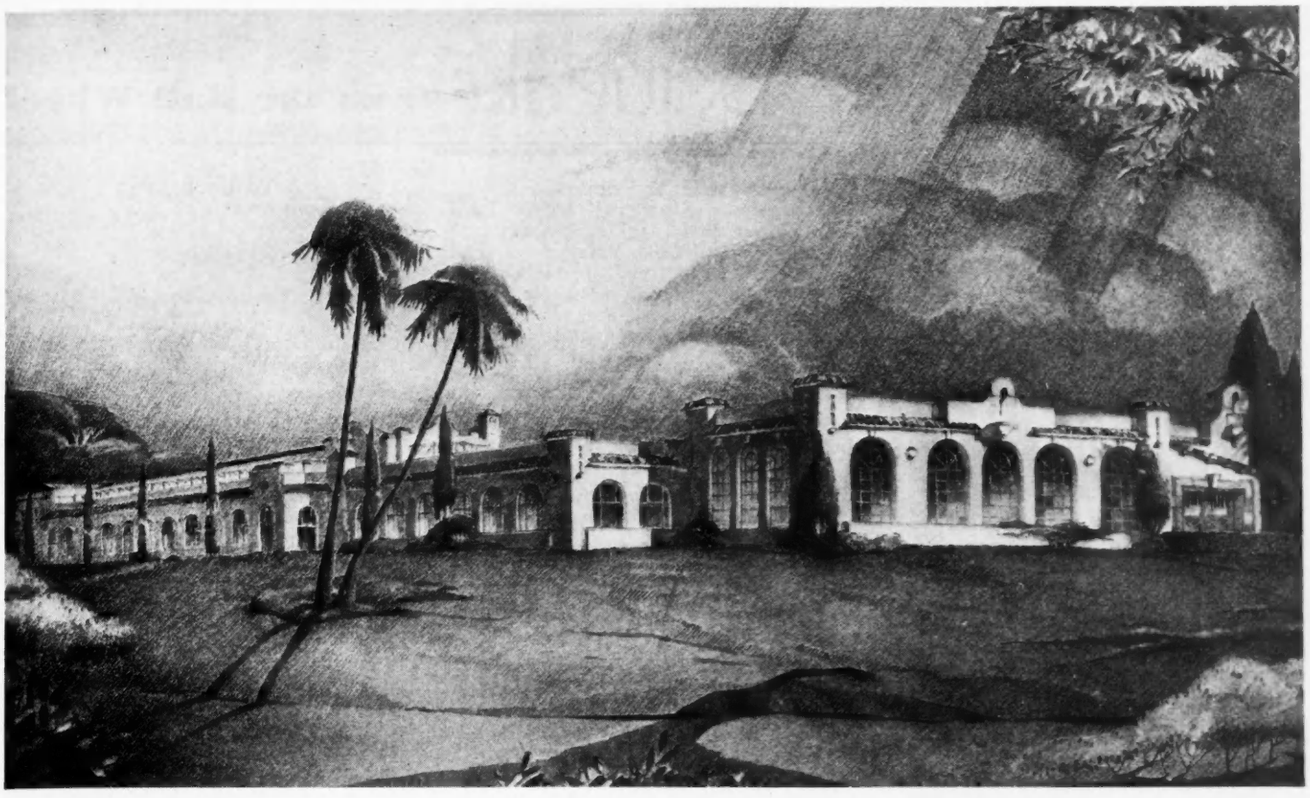
R. B. Heppenstall has been with the company since he graduated from Williams College in 1925. S. B. Heppenstall, Jr., left Pennsylvania State College in 1928 to join the company. C. W. Heppenstall, Jr., graduated from Pennsylvania State College in 1922.

The company specializes in the manufacture of forged products from high grade alloy and carbon steel, including shear knives and die blocks.

Companies in France, England and Canada are licensed by Heppenstall Company to employ its manufacturing processes.

The company has plants in Pittsburgh and Bridgeport, Connecticut, a

Hamer Oil Tool Company recently completed a modern office building in connection with the plant at 2919 Gardenia, Long Beach, California. The picture shows Leland S. Hamer, president of the company, seated at his desk in the new office building, with his associate directors. Seated, left to right, are N. K. Anderson, Hamer and Ramona Zillgitt, secretary-treasurer; standing, Charles D. Andrews, A. R. Loud, Dr. Paul A. Dewhirst and Vernon C. Zillgitt, vice president.



warehouse in Detroit, and offices in Los Angeles, San Francisco, Fort Worth, Denver, St. Louis, Philadelphia, Washington, Boston, New York, Syracuse, Rochester, Buffalo, Cleveland, Chicago, Indianapolis and Birmingham. There is a foreign office in Paris, France.

Unibolt Couplings Chosen for New Turbine Locomotive

The reputation of Unibolt Couplings to withstand high pressures and high temperatures has spread outside the oil industry. According to Thornhill-Craver Company, Houston, manufacturers of Unibolt Couplings, design of the Union Pacific Railroad's new streamline steam turbine train calls for Unibolts on its steam lines.

The Gulf Publishing Company's plant and office building at Houston, as it will appear when addition, now under construction, is completed. Offices of The Oil Weekly, The Refiner & Natural Gasoline Manufacturer, The Composite Catalog of Oil Field and Pipe Line Equipment, and The Composite Catalog of Refinery Equipment, all owned by The Gulf Publishing Company, are on the second floor, at the left of the drawing. The new addition under construction will add about 80 percent to the plant floor space. The building is located at 3301 Buffalo Drive. Not shown in the picture is another wing and a patio enclosing a Spanish Garden. Architect on the new addition is Alfred C. Finn.

Kenneth J. Mills Selling Baldwin Chain at Houston

Kenneth J. Mills has been appointed representative of George J. Fix Company in Houston, to handle sales for the Baldwin-Duckworth Chain Corporation.

United States Rubber Company Establishes Branch at Baltimore

H. A. Everlien, sales manager, Mechanical Goods Division, United States Rubber Company, announces that the Mechanical Goods Division, Baltimore branch, which has heretofore functioned under supervision of the Philadelphia branch, will from now on operate as an independent branch, under R. F. Jackson, as Manager of Mechanical Sales.

The picture is unique in that it shows the only left-handed foursome composed of oil men ever to take off at the Hacienda Country Club in Los Angeles at 2:11 p.m. on January 1, 1939.

Despite the professional appearance of the gentlemen, none of them have as yet broken into public print through wining national tournaments. However, all of them have clubs capable of winning such tournaments. The gentleman on the extreme right has a club in his hand although he was so nervous that the camera did not catch it. Reading from left to right they are: Jack Ballagh, Patterson-Ballagh Corporation; Elmer Wycoff, mill representative, National Tube Company; Charles Perkins, assistant purchasing agent, Union Oil Company, and Wallace Rushing, district manager, E. H. Edwards Company.

Editor's Note: The publisher says that the only reason this picture should be printed is that he plays golf with these fellows in California every summer and it may help get some strokes.

LUCK WON'T INCREASE PRODUCTION

a MILLER will!

Why wait longer to get FULL production from your wells?—when a MILLER Sand Pump will quickly, at small cost clean-out the sand and sediment holding back YOUR oil.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition

● BAILER BOTTOM
With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM
Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Pages 1564-65 COMPOSITE CATALOG

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NO. 1523604
NO. 1727390
NO. 1862626
NO. 1866626
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1524 S.E. 29th. P. O. Box 4516 Tel. 7-6884

Branches:

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Okla.	Texas	Texas
Tel: 341	Tel: 545	Tel: P-2841

FOR SALE BY SUPPLY STORES EVERYWHERE

Squeaks from the Bull Wheel

Says Paul Peebles

"I see by the papers," writes Paul Peebles, our roughnecking correspondent from Pistol Hill, "that my friend O'Daniel, who gotten himself elected governor of Texas by mountain music and promisin' to pay everybody over 65 a penshun, wants to get it fixed so nobody in the future can make a racket out of this promisin' business and get hisself elected governor by promisin' more than he has."

No Music

"And have you music at the church?"
I asked the rural squire.
"Wall, no," he said, "can't say we have;
Jest singin' by the choir."

Education

"Has the advent of the radio helped ranch life?"

"I'll say it has. Why, we learn a new cowboy song every night, and, say, we've found out that the dialect us fellers have used fer years is all wrong."

Faith and Skepticism

"He said that he would love me forever and ever."

"Ah, men!"

Tit for Tat

I wish you would not give me such short weight for my money.

I wish you would not give me such a long wait for mine.

Foresight

"Hi, Billy."
"Hi," said the brat.
"Is your sister expecting me?"
"Yeah."
"How do you know?"
"She's gone out."

Study in Figures

"So you met Marian today?"
"Yes, I hadn't seen her for 10 years."
"Has she kept her girlish figure?"
"Kept it? She's doubled it."

Natural Deduction

Freshman—What do they call those tablets the Gauls used to write on?

Roommate—Gaul stones.

Often the Case

"Willie, what is an adult?"

"An adult is one that has stopped growing except in the middle."

Out of Date

"How old are you, my little man?"

"I don't know. Mother was 26 when I was born, but now she's only 24."

Reciprocal

Bachelor—Sometimes I yearn for the peace and comfort of married life.

Married Friend—I always do.

Aha

"Do you think the motor will entirely supersede the horse?"

"I hope not," replied Farmer Ticks. "There must be some market for hay. I depend on what I make on hay to buy gasoline."

To Look In

"You desire a mirror, madam; a hand mirror?"

"No, one for my face."

Young Webster

Wait a moment, Johnny. What do you understand by the word "deficit"?

It's what you've got when you haven't got as much as if you just hadn't nothin'.

Shopping Problem

"What's harder than buying a present for a girl who has everything?"

"Buying one for a girl who wants everything."

Their Way

"Why did you attack your husband with a flat iron?"

"When we were here yesterday, Judge, you told us to go home and iron out our differences!"

No Sale

"I am all in, I've been running around all day trying to get something for my wife."

"Well, have you had any offers?"

Taking No Chances

The boy who gets my daughter will certainly get a prize.

"May I see it, please?"

Page Peggy Hopkins Joyce

Say, there's a bunch of people outside, waiting to see you. Among them is a bishop who says he married you some time ago.

Gee; I'm practically certain I never married a bishop.

Dad's View

Daddy, dear, what's dew?
The rent, the note at the bank, and the car instalment.

On Leave

Convict: "I am here for having two wives."

Visitor: "How are you enjoying your liberty?"

Long Service

"Yes, 20 long years I have sung in ze Metropolitan."

"Gee, you musta known Madame Butterfly when she was only a caterpillar."

On Brevity

Father: "First of all, my boy, realize that my time is limited. Secondly, say what you want. Thirdly, be short."

Son: "Well dad, firstly, I do. Secondly, I will. Thirdly, I am."

Cleaning Up

"Don't you agree that the movies should be kept clean?"

"Absolutely. Something should be done about those people who throw candy boxes and peanut shells on the floor."